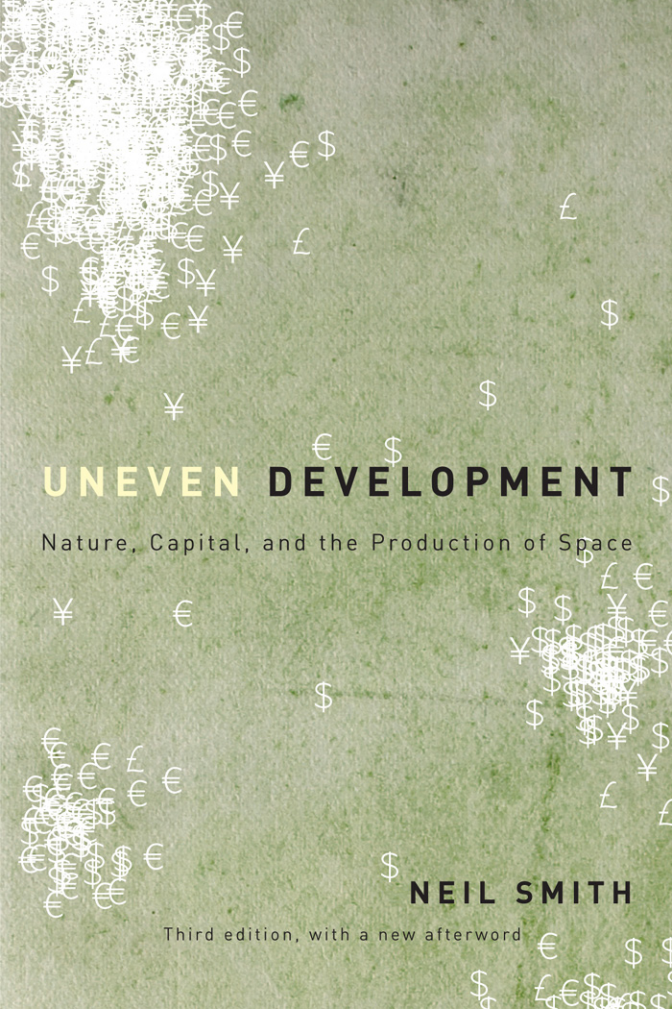
UNEVEN DEVELOPMENT
Nature, Capital, and the Production of Space
NEIL SMITH
Third edition, with a new afterword

VISIT…

UNEVEN DEVELOPMENT

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NEIL SMITH

Uneven Development

Nature, Capital, and the Production of Space

Third Edition

With a new afterword by the author and a foreword by David Harvey

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Foreword

THE REPUBLICATION OF Neil Smith's *Uneven Development* is cause for celebration on two counts. First, the book pioneered a wholly new approach to uneven geographical development at a historical moment when the collision of Marxian theorizing and geographical thinking was in its incipient but most fruitful and illuminating phase. It took someone with Smith's deep knowledge of and passionate commitment to both Marxian and geographical theory to pull off the merger of two so very different modes of thinking with such insight and panache. What Smith ended up doing, in effect, was to take seriously Lefebvre's assertion that capitalism has survived since the beginning of the twentieth century in large part through the production of space (and show theoretically why that has been and must be so) and explore its deeper

and multiple intellectual and political meanings by accepting Alfred North Whitehead's view that "the determination of the meaning of nature"—including human nature—"reduces itself principally to the discussion of the character of time and the character of space." Smith did not start from these propositions. But that this was where he ended up after careful critical engagement with a whole host of competing ideas about capital, space, and nature, is undeniable. It is a tribute to this crucial insight that so many of us have continued to elaborate on this theme ever since. *Uneven Development* was, and continues to be, therefore, a foundational text of great historical significance, constantly worthy of reappraisal. It provides, as Edward Said noted in *Culture and Imperialism*, "a brilliant formulation of how the production of a particular kind of nature and space under historical capitalism is essential to the unequal development of a landscape that integrates poverty with wealth, industrial urbanization with agricultural diminishment."

But Said's commentary leads us directly to the second reason to applaud the reissue of *Uneven Development*. The unequal development of the global economy, with its burgeoning extremes of wealth and poverty, its astonishing pace of urbanization and environmental degradation, has accelerated rather than diminished over the quarter century since this book was first published. The political message of the book should, under such conditions, be doubly welcome simply because it is more relevant than ever to dissecting our present predicaments. Yet the penchant for tough critique in academia has notably waned over the years as the reputation of Marxian theorizing, of political-economic analysis, and of politically targeted critical geographical theory has been diminished not only by events (such as the end of communism) but also subject to dissolution in the tepid wash of identity politics and cultural theorizing. This so-called radical thinking amounts to thinly veiled apologetics for either doing nothing or offering mild support to either toothless communitarian oppositions or, even worse, covert neoliberalization.

When the widely held belief takes hold (in part promoted within hegemonic institutions such as the media and the universities, themselves

subjected to neoliberal pressures and market determinations) that the answers to global poverty and environmental degradation lie in the extension of market logics and private property arrangements (everything from ridiculously inefficient as well as inegalitarian carbon-trading regimes to microcredit institutions that shamelessly prey on the poor) then there is precious little critical basis left for struggling to construct a more globally just social order. The ambition to ameliorate the worst abuses of neoliberal globalization and imperialism by human rights activism at best ameliorates and at worst ends up promoting the very ideals of neoliberal individualism and personal responsibility that lie at the root of our present difficulties.

Fortunately, there are social movements afoot around the world that insist that "another world is possible." And they are making plain their determination to construct that other world. But here, too, there is another barrier encountered to constructive politics, born out of the failures of so many traditional left movements to abandon their dogmatic assertions and their analyses constructed to confront a bygone era. While all of us concerned to build a better world need to rethink politics and ways of knowing in ways appropriate to our complicated contemporary geographical and historical situation, it is hard to do so within a climate of distrust for all forms of intellectual abstraction let alone the rigors of Marxian theorizing. But activists forget at their peril the advice long ago proffered by that great geographer Elisee Reclus to his anarchist comrades when, toward the end of a long life of struggle, he wrote: "Great enthusiasm and dedication to the point of risking one's life are not the only ways of serving a cause. . . . The conscious revolutionary is not only a person of feeling, but also one of reason, for whom every effort to promote justice and solidarity rests on precise knowledge. . . . Such a person can incorporate his personal ideas into the larger context of the human sciences, and can brave the struggle, sustained by the immense power he gains through his broad knowledge."

Neil Smith's *Uneven Development* is an essay in intellectual and political empowerment, a nondogmatic and wide-ranging inquiry into

crucial aspects of the human condition, one that can still inspire and teach us much about that other world that is indeed possible. It deserves a careful reading and rereading. You will not be disappointed.

David Harvey

Preface to the Second Edition

EARLY IN THE TWENTIETH CENTURY, students at Al Azhar University in Egypt went on strike. It was hardly a progressive movement; they were rebelling against the science of geography, which they rejected as much too innovative and a clear threat to established tradition. Their fears may have been real, but in the end were misfounded. During the twentieth century, the "science of geography" has attended to a gamut of ruling-class agendas in different national and international contexts, and yet by the late 1970s, as global politics moved right, geography moved left. By the end of the 1980s, as the rebellions grew in Eastern Europe, a U.S. state department official grabbed headlines with the desperate optimism that we were facing the "end of history"; American capitalism had won. In its ideological insulation from events

non-American, this vision also assumes the end of geography. For the American Empire, if hardly for the oppressed and exploited around the world, news of this freezing of time and space may have come just in time. It presumably obviates any need to confront seriously the reasons and consequences of the fading American century and the deepening crisis of liveability for more and more people around the globe.

Viewed from somewhere other than Washington, the events of the 1980s suggest a different perspective. Far from an end to history, we may be witnessing the "beginning of geography." The deconstruction of a comparatively stable postwar capitalism in its various monopoly and state guises, combined with the consequent social, political, and economic restructurings, have provoked such fragmentation, dissociation, and recombination of places and events at all spatial scales that indeed the production of new landscapes today puts space and nature—the central themes of geographical inquiry—firmly on the political agenda. Geography is being rescripted as an active political process. This is realized in more academic realms too where, to use Ed Soja's felicitous phrase, there has been a "reassertion of space in critical social theory."

I ended the preface to the first edition by quoting the now familiar sentiment that "all that is solid melts into air." With the publication of Marshall Berman's book of that title, this aphorism from Marx and Engels has come to symbolize the fragmentation of experience in the 1980s that led many to reject the global vision of marxism in favor of various localisms. Yet it is increasingly apparent that the melted geographies of the past decade and more are being recast in the 1990s, resolidified, remade as new expressions of restructured constellations of social relations. In this book I argue that the uneven development of capitalism can best be conceived as resulting from contradictory tendencies toward the differentiation and the equalization of levels and conditions of development. If for understandable reasons the processes of differentiation occupied most of our attention in recent years, we will fail to understand the geography of uneven development unless it is understood that differentiation and equalization are inseparable, mutually implicative. Then

indeed the innovative, progressive, rebellious potential of the "science of geography" that so offended the students of Al Azhar might also be realized.

Many colleagues have helped me to expand my ideas on uneven development in recent years, and although their comments and criticisms are not always incorporated here, I want to acknowledge their help. David Harvey, Cindi Katz, and Ed Soja have been especially sensitive and challenging critics who have quite differently taught me new ways of seeing. As a student, I often thought it patronizing when authors thanked their students for their "stimulating" influence, but since moving to Rutgers I have come to depend considerably on the intellectual excitement engendered by an exceptional group of people: Laura Reid, Leyla Vural, Tanya Steinberg, Andy Herod, Don Mitchell, Tamar Rothenberg, and Julie Tuason have all in different ways contributed time and ideas, and I hope this has been as worthwhile for them as it has been for me.

Neil Smith
May 1990

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Preface to the First Edition

THIS BOOK REPRESENTS the meeting ground of two types of intellectual investigation. The first is a theoretical and philosophical exploration and critique of concepts as a means to interrogate more sharply the reality we live in. Thus the first two chapters are concerned with renovating the terribly archaic conception of nature that dominates Western thought. I began this aspect of the work in 1979. The second kind of investigation arose separately out of a fascination for North American cities. It seemed to me in the mid-1970s that urban spatial structure both defied all the traditional urban models, and yet had a very coherent if dynamic pattern. In a very superficial way at first, I was convinced that one could read much of the social structure of society from its inscription in urban geographical space. In particular, I was fascinated with

the process of gentrification and began research on this topic. As the research continued, against a backdrop of greater familiarity with marxist theory and concepts, I became convinced that gentrification was itself the product of spatially more universal, if quite specific, forces operating at different scales: the general process was one of *uneven development*.

As the research into spatial structure broadened into a theoretical investigation, the links with the more philosophical investigation became clear. Thus the third chapter on space links the more abstract work on nature with the theoretical investigation of uneven development pursued in chapters 4 and 5. The final product represents, I hope, less a philosophical investigation than a bridge from the philosophical interrogation of concepts to their application in pursuit of new theoretical vistas. For as Marx insisted, there can be no philosophy separate from practical science. It is certainly an attempt to get beyond philosophy.

Intellectual wealth is achieved through the accumulation of debts. I only hope that in my case the wealth is equal to the debts. David Harvey has contributed more to this work than can be said in words and footnotes. He mixed encouragement and challenging criticisms with free dinners and friendship. He always believed in the importance of the project and responded with his unique mix of laissez-faire encouragement and active interventionism. His own work has inspired me since before I went to Baltimore, and continues to do so. He also read and criticized an earlier draft of the manuscript.

But I would never have arrived in Baltimore if it had not been for Joe Doherty in St. Andrews, who first encouraged me to make philosophical speculation responsible to reality. He patiently and quietly insisted that I deal with the most troublesome issues, and without his sincere commitment I could never have envisioned the present work, even in ideal embryo. Once in Baltimore, Reds Wolman provided consistent support at a level I had no reason to expect, and although he did not always understand what I was trying to do, he trusted me to do it.

In the early stages of the work, Nancy Gish was supportive in many ways but insisted that if I was going to write I may as well do so clearly.

In the later stages, many people have contributed but none more so than Kathy Ogren who would let me talk about my work and who offered the support of deep friendship. Others were stimulating colleagues and friends who, in different ways, tolerated my anti-social hours and tendencies, and talked with me anyway: Beatriz Nofal, Michele LeFaivre, Barri Brown, Phil O'Keefe, Barbara Koeppel, Donna Haraway, Jerry MacDonald, and Lydia Herman. Several people have assisted with parts of the typing in its various (usually rushed) stages: Karen Pekala, Jean Kelley, Katie Reininger, Peggy Newfield, and Liza Cluggish. If Leon unfailingly attacked the first draft in the wee hours, Peon gladly inherited this responsibility for the second draft.

"All that is solid," Marx once said, "melts into air." This is true not only of the geography of capitalism; in a period such as this it is also true of the political struggles against exploitation and oppression. And so finally I want to acknowledge the inspiration provided by Cal and Barbara Winslow. With them, I look forward to the days when we will again have something solid.

Neil Smith

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UNEVEN DEVELOPMENT

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Introduction

THIS BOOK IS ABOUT the geography of politics and the politics of geography. It therefore attempts to integrate two intellectual traditions which until very recently have enjoyed little serious cross-fertilization. If the work is theoretical in substance and exposition, it is quite immediate in motivation. For one can hardly look at the world today without perceiving that, at the hands of capital, the last two decades have witnessed an emergent restructuring of geographical space more dramatic than any before. Deindustrialization and regional decline, gentrification and extrametropolitan growth, the industrialization of the Third World and a new international division of labor, intensified nationalism and a new geopolitics of war—these are not separate developments but symptoms of a much deeper transformation in the geography of capitalism. At the

most basic level, the object of this work is to unravel the theoretical logic driving this restructuring of geographical space.

The first tradition, that of academic geography, provides us with the orthodox concepts of geographical space and the environment, as well as an analysis of spatial relations on the surface of the earth. Long mesmerized by a peculiar brand of neo-Kantian historicism, academic geography relinquished its eighteenth-century garb in the 1960s in favor of a thoroughly anti-historical positivism. Though by no means unchallenged, an abstract conception of absolute space now dominates this tradition; space (along with time) is a basic coordinate of reality, a field, an infinite, universal, and unchanging box within which material events occur. According to this tradition, therefore, the restructuring of space makes no sense except as the product of the most universal physical forces and laws: human activity does not restructure space; it simply rearranges objects in space. Viewed through this set of philosophical lenses the symptoms of spatial restructuring appear as just so many separate processes at separate scales with very separate causes and explanations. Because the lenses are too crude, the real pattern is refracted in fragments.

The second tradition is that of the political analysis of capitalist society. By contrast with the geographical tradition, marxist theory is explicitly historical, and this is one of its major strengths. Marxist theory attempts to explain the specific economic, political, and social structure of society in a given period as the result not of supposedly universal forces (for example, human nature), but as the result of historically specific and contingent processes. It is not just that competition and the market, economic growth and the profit motive are historically contingent, but that the form they take changes and develops within the history of capitalism itself. A further strength of marxist theory is its relational perspective which treats capitalist society as a coherent (if not always consistent) whole, rather than as an agglomeration of fragments. These strengths make this tradition particularly sensitive to the contemporary restructuring of capitalist society. But what it gains in historical sensibil-

ity it lacks in geographical sensibility, perhaps because, despite the holistic approach, marxists have tended to accept the traditional bourgeois conception of space as quite separate from society. Only in the isolated cases of the analysis of the separation of town and country, and of the necessity of internationalism, does the marxist tradition transcend this acquiescence to the bourgeois conception of space. While this tradition has the theoretical wherewithal to comprehend the contemporary restructuring of geographical space, therefore, it has tended to lack the requisite geographical sensibility.

In an attempt more fully to comprehend the restructuring of geographical space, a number of researchers have begun to explore the intersection between the geographical and the marxist traditions.[1] Broadly, the focus that is developing is upon the question: what is the geography of capitalism? What specific spatial patterns and processes characterize capitalist society, and how do they change with the further development of capitalism? In itself this represents a significant advance for both traditions. For geography it offers the possibility of putting the philosophical lenses into historical focus, thus opening up a whole new world in which human societies create their own geography. For marxism it offers the chance both to extend the jurisdiction of marxist theory into the geographical sphere, and also to deepen it, in that even the natural and spatial substructure of the social landscape can then be comprehended from within marxist theory.

Most of the emerging work on the geography of capitalism examines in some detail the process of uneven development, which has become a fashionable even faddish idea in the last decade. So faddish, indeed, that like all fads it has been quickly trivialized. One can see, for example, how geographers might treat uneven development as an ahistorical and universal process, little more than the inevitable result of the eternal impossibility of *even* development: "*everything* develops unevenly." Far more disturbing is to find marxists, despite the historical acuity of their theory, submitting to the same trivialization. For uneven development is far too fundamental to the unfolding of capitalism for it to be passed

over as a commonplace and added to the buzzword list of processes deserving only lip service. The point is that uneven development is the hallmark of the geography of capitalism. It is not just that capitalism fails to develop evenly, that due to accidental and random factors the geographical development of capitalism represents some stochastic deviation from a generally even process. The uneven development of capitalism is structural rather than statistical. The resulting geographical patterns are thoroughly determinate (as opposed to "determinist") and are thus unique to capitalism. At the most basic level, as I hope to show, uneven development is the systematic geographical expression of the contradictions inherent in the very constitution and structure of capital.

Occupying the common ground between the geographical and political traditions, a theory of uneven development provides the major key in determining what characterizes the specific geography of capitalism. Phrased this way, the question is essentially *geographical*. But one cannot probe too far into the logic of uneven development without realizing that something far more profound is at stake. It is not just a question of what capitalism does to geography but rather of what geography can do for capitalism. Thus in addition to the essentially geographical question, the theory of uneven development also addresses the *political* question: how does the geographical configuration of the landscape contribute to the survival of capitalism? From the marxist point of view, therefore, it is not just a question of extending the depth and jurisdiction of marxist theory, but of pioneering a whole new facet of explanation concerning the survival of capitalism in the twentieth century. From the vantage point of the geographical tradition, which especially in the United States today is grasping for all entrepreneurial opportunities, the result is no less dramatic. The popular geographical wisdom is that we live in a shrinking world, that cheap and sophisticated transportation systems have diminished the importance of geographical space and geographical differentiation, that traditional regional identities are being evened out—in short, that we are somehow beyond geography. What I argue here in the derivation of the theory of uneven development is that whatever the partial truths conveyed by the popular wisdom, the contrary

is true. Geographical space is on the economic and political agenda as never before. The idea of the "geographical pivot of history" takes on a more modern and more profound meaning than Mackinder could have imagined.[2]

The idea of uneven development has a heritage in marxist theory, and before proceeding with the task at hand, it is necessary to clarify where the present analysis fits in the context of the so-called law of uneven development. Claiming an exclusive marxist pedigree for the idea of uneven (and combined) development, Ernest Mandel has gone as far as to say that with the exception of Marx's own work, no idea of explicitly marxist origin has become so influential and widespread in bourgeois circles.[3] There is a germ of truth in this even if it tends toward exaggeration. Yet in the marxist tradition itself, this conception has not been well developed. It figured prominently in the political struggle between Trotsky and Stalin in the 1920s, especially in the debates over internationalism and "socialism in one country." In this context it was a political concept which referred to the uneven development of class struggle and of the challenge to world capitalism. As with so many facets of twentieth-century marxist thought, the pattern of response established in this period of emerging stalinism has dominated later treatments of the process.

In fact, uneven development, as a discrete process, was first examined in any depth by Lenin, who tried to sketch some of the economic and geographic outlines of the process. Although he periodically referred to it in later analyses, this earlier suggestive work was never developed.[4] After the revolution of 1905 the notion of uneven development came to be interpreted in terms of the immediate political question, whether socialist revolution was possible in the economically less advanced nations where the peasantry still outnumbered the working class and the emerging bourgeoisie was weak. This was the concept which Trotsky recovered and refined in his political fight against Stalin; thus today the "law of uneven and combined development" is clearly associated with the trotskyist tradition. With the defeat of Trotsky the concept fell into obscurity, but not before its economic and geographical content was completely

displaced. Connected with Trotsky's theory of permanent revolution, it survived in the trotskyist movement as a political term referring to the development of class relations and the anatomy of revolution.[5]

If the attention paid to uneven development in the last decade or so owes something to this classical marxist heritage, it owes a lot more to the general resurgence of interest in marxism which followed the 1960s as well as the geographical acuteness of the actual process. If the importance and structure of the process were not recognized eighty years ago this is because the geographical pattern of capital accumulation has changed abruptly since that period. Uneven development, in the strict sense implied in this work, is a truly twentieth-century phenomenon. Thus the derivation of a theory (as distinct from a law) of uneven development involves a second dialogue beyond that between geographical and political traditions. It also involves a historical dialogue between a theoretical analysis of capitalism derived in the nineteenth century and the reality of capitalism toward the close of the twentieth century.

The logic of uneven development derives specifically from the opposed tendencies, inherent in capital, toward the differentiation but simultaneous equalization of the levels and conditions of production. Capital is continually invested in the built environment in order to produce surplus value and expand the basis of capital itself. But equally, capital is continually withdrawn from the built environment so that it can move elsewhere and take advantage of higher profit rates. The spatial immobilization of productive capital in its material form is no more or less a necessity than the perpetual circulation of capital as value. Thus it is possible to see the uneven development of capitalism as the geographical expression of the more fundamental contradiction between use-value and exchange-value.

The pattern which results in the landscape is well known: development at one pole and underdevelopment at the other. This takes place at a number of spatial scales. Dependency theory, center-periphery theory, and the various theories of underdevelopment all capture something of this process. But their focus tends to be on the global scale alone, and the geographical dimensions of uneven development are poorly worked

out. They do not, in short, offer a well-developed theoretical framework for understanding the geography of capitalism. Surprisingly, perhaps, the main barrier to understanding this geography comes less from our ignorance about the workings of capital and more from our deeply engrained and commonly held prejudices concerning space. A theory of uneven development must integrate space and social process at a number of levels, and yet our commonsense view of space as a field of activity or as a container makes it difficult to get beyond a rather mechanical integration of space and society; space is seen to "reflect" society. A fundamental change of perspective is demanded here. For while we as theorists may have drastic conceptual problems in achieving an integration of space and society, capital seems to achieve it in practice on a daily basis. What it achieves in fact is the *production of space* in its own image, and exploration of this idea will lead to a more complete integration of space and society in the theory of uneven development. For not only does capital produce space in general, it produces the real spatial scales that give uneven development its coherence.

The production of space, in fact, is premised on a more basic production process, one which sounds even more quixotic and which jars our traditional acceptance of what had hitherto seemed self-evident. The *production of nature* not only provides a rather philosophical foundation for discussing the uneven development of capitalism, but it is a very real result of the development of this mode of production. What jars us so much about this idea of the production of nature is that it defies the conventional, sacrosanct separation of nature and society, and it does so with such abandon and without shame. We are used to conceiving of nature as external to society, pristine and pre-human, or else as a grand universal in which human beings are but small and simple cogs. But here again our concepts have not caught up with reality. It is capitalism which ardently defies the inherited separation of nature and society, and with pride rather than shame.

In its constant drive to accumulate larger and larger quantities of social wealth under its control, capital transforms the shape of the entire world. No God-given stone is left unturned, no original relation with

nature unaltered, no living thing unaffected. To this extent the problems of nature, of space, and of uneven development are tied together by capital itself. Uneven development is the concrete process and pattern of the production of nature under capitalism. This will become more evident in the discussion of the production of nature which in some ways reduces itself to a discussion of use-value, value, and exchange-value. There can be no apology for the anthropomorphism of this perspective: with the development of capitalism, human society has put itself at the center of nature, and we shall be able to deal with the problems this has created only if we first recognize the reality.

The progression of the present work is straightforward. After considering the ideology of nature (chapter 1) I attempt to lay out the rudiments of an alternative conception of the relation with nature, focusing on the production of nature (chapter 2). If these first two chapters appear somewhat abstract and not quite to the point, this is partly because of our customary dichotomy of nature and society, and I hope that it will not daunt the reader. In chapter 3, I discuss the relationship between nature and space and derive the powerful impetus within capital toward the production of space. In chapter 4, the focus is upon the basic processes of equalization and differentiation and their relationship to the accumulation and circulation of capital. This acts as the final foundation for chapter 5, which presents the general theory of uneven development. Here I rely heavily on the conclusions concerning space and nature from the earlier chapters, but also upon Marx's analysis of capitalism. For when one draws out the spatial implications and dimensions of Marx's analysis, especially in *Capital*, the basis of uneven development theory is then ready at hand. Thus the analysis begins with more general philosophical categories which must be renovated before building up to the actual analysis of uneven development.

In developing the theory of uneven development I shall follow the logico-historical procedure employed by Marx. In *Capital* he "assumed that the laws of capitalist production operate in their pure form. In reality there exists only approximation; but, this approximation is the

greater, the more developed the capitalist mode of production." In other words, this assumption of a pure form is no arbitrary abstraction but one that actually occurs historically; this assumption "expresses the limit [of the process] and . . . is therefore constantly coming closer to an exact presentation of reality."[6] Whether it proceeds from the messy historical legacy of feudalism or from an assumed ideal plain, the uneven development of capitalism becomes increasingly acute, both in the geographical landscape and as an inner necessity of capital. This work attempts a theoretical analysis of the processes by which this comes about.

CHAPTER ONE

The Ideology of Nature

MORE THAN ANY OTHER identifiable experience, the emergence of industrial capitalism is responsible for setting contemporary views and visions of nature. For apologist and detractor alike, the global transformation of nature wrought by industrial capitalism dominates both the physical and intellectual consumption of nature. This experience filters out old, incompatible conceptions of nature and precipitates new ones. The domination of nature is a generally accepted reality, whether it is viewed in awe as a measure of human progress or in fear as a tragic warning of imminent disaster. Where some anticipate "that a total control of nature is possible in a not very distant future," others lament that human society is becoming little more than "a massive racket in nature."[1] For all of them, however, the reality of social domination

over nature is given, even if the extent of the process is a matter of debate and its morality the object of bitter struggle.

Yet despite the centrality of this experience, at the level of individual daily life as well as that of society as a whole, our current conception of nature is not simple nor is it at all a mere conceptual reflection of this relatively recent social experience of nature. Much as a tree in growth adds a new ring each year, the social concept of nature has accumulated innumerable layers of meaning in the course of history. Just as felling the tree exposes these rings—before the timber is sent to the saw mill for fashioning into a human artifact—industrial capitalism has cut into the accumulated meanings of nature so that they can be shaped and fashioned into concepts of nature appropriate for the present era. Old concepts of nature are less vanquished than co-opted to the present purpose. Thus despite the common grounding in the experience of nature, the concept of nature is extremely complex and often contradictory. Nature is material and it is spiritual, it is given and made, pure and undefiled; nature is order and it is disorder, sublime and secular, dominated and victorious; it is a totality and a series of parts, woman and object, organism and machine. Nature is the gift of God and it is a product of its own evolution; it is a universal outside history and also the product of history, accidental and designed, wilderness and garden. In our range of conceptions of nature, all of these meanings survive today, but even in their complexity they are organized into an essential dualism that dominates the conception of nature.

On the one hand, nature is *external*, a thing, the realm of extra human objects and processes existing outside society. External nature is pristine, God-given, autonomous; it is the raw material from which society is built, the frontier which industrial capitalism continually pushes back. As trees and rocks, rivers and rainstorms, it is external nature waiting to be internalized in the process of social production. On the other hand, nature is also clearly conceived as *universal*. For alongside external nature we have human nature, by which is implied that human beings and their social behaviors are every bit as natural as the so-called

external aspects of nature. Thus ecological treatments of human society situate the human species as one among many in the totality of nature. In contradistinction to the external concept of nature, the universal concept includes the human with the non-human in nature. External and universal nature are not entirely reconcilable, for at the same time that nature is held to be external to human existence, it is simultaneously both external and internal.

This conceptual dualism of nature is not absolute. However contradictory these conceptions of nature may be, they are often confused in practice and not at all cleanly separated. The historical roots of the dualism can be traced most directly to Kant, although they certainly appear in fragments throughout the Judeo-Christian intellectual tradition. Kant distinguished between several different "natures," but (most important for our purposes and perhaps most enduring historically) he was led to distinguish in particular between an internal and external nature. The internal nature of human beings comprised their crude passions while external nature was the social and physical environment in which human beings lived. This distinction was, in a sense, forced upon Kant as a result of the epistemological system he came to hold, and it is significant that in this dualism the human mind itself does not figure at all. For Kant, the mind was ultimately the means through which this dualism was overcome: the individual knowing mind experienced nature as a unity in the mind; and at the level of the species it was the function of culture to overcome this dualism of inner beast and outer nature.[2] Thus the initial dualism provokes or at least implies others which sound familiar still today: mind and nature, culture and nature. The contemporary bourgeois ideology of nature is built upon these philosophical dichotomies promoted by Kant. His dichotomy of internal versus external nature still strikes us today as intuitively correct. If anything it has a more immediate intuitive appeal than the dualism of external and universal nature.

The subject of nature, real and conceptual, threads through the entire fabric of western thought. If it is a mammoth task to summarize the development of the major concepts of nature up to Kant,[3] it would

be a similarly mammoth task to do the same for the last two centuries. For during this time, the social relation with nature has undergone an unprecedented transformation. Parallel to this, many old conceptions of nature have been fossilized as museum pieces while other comparatively obscure concepts have risen rapidly to prominence. It is in this short period that the dualism inherent in Kant has crystallized into the backbone of the bourgeois ideology of nature. Given the immensity of the task we cannot trace the detailed historical development of the ideology in this chapter. Instead we will simply illustrate this ideology by examining two particular modes of experiencing and conceptualizing nature: the scientific and what we shall call, for want of a better description, the poetic. No pretence is made to completeness; in each case the treatment is very selective since the point is to illustrate rather than definitively prove the bourgeois ideology of nature. Finally, we shall examine the marxist treatment of nature, the major alternative to the bourgeois conception.

I. Nature in Science

It is traditional to trace the origins of modern science back to the early seventeenth century and Francis Bacon. Bacon is best known for his enthusiastic advocacy of the mastery of nature. The mastery of nature, he reasoned, is a divine journey sanctioned by God and made necessary by the Fall from the Garden of Eden. If Innocence was forever lost, still something of the harmonious balance between "man and nature" could be repossessed through man's beneficent dominion over nature. The mastery of nature is achieved through application of the "mechanical arts" which are in turn developed through the "inquisition of nature." Only by "digging further and further into the mind of natural knowledge" could man develop the means of mastery over nature; man commands nature by obeying "her." Thus Bacon devoted his life to the establishment of the institutional means for systematic scientific research, a vision immortalized in the *New Atlantis* but never achieved in practice during Bacon's lifetime.[4]

So much of Bacon's imagery, as well as the ideas they convey, have passed into our language and conception of science that his originality

is hard to appreciate in hindsight. Be this as it may, the conception of nature conveyed by Bacon is explicitly external to human society; it is an object to be mastered and manipulated. In comparison at least to earlier conceptions, Bacon's image of the relation with nature is mechanical more than organic. Society is separated out from nature as the domain of man which, with prescient governance, can be employed toward man's mastery of nature. Of course the political benefits of mastering nature were not lost on Bacon, Lord Chancellor of England, and here he not only affirms the externality of nature but in seeing the potential for social control, inherent in science, he anticipates Kant's distinction of external and internal nature:

> Neither is certainly that other merit of learning, in repressing the inconveniences which grow from man to man, much inferior to the former, of relieving the necessities which arise from nature. . . . [For men] are full of savage and unreclaimed desires, of profit, of lust, of revenge, which as long as they give ear to precepts, to laws, to religion, sweetly touched with eloquence and persuasion of books, of sermons, of harangues, so long is society and peace maintained; but if these instruments be silent, or that sedition and tumult make them not audible, all things dissolve into anarchy and confusion.[5]

Scientific research could also provide the means for mastering human nature, repressing the deleterious consequences of human passion, greed, and desires.

Now from Bacon onward it is a commonplace that science treats nature as external in the sense that scientific method and procedure dictates an absolute abstraction both from the social context of the events and objects under scrutiny and from the social context of the scientific activity itself. For all that Newton's mechanics permitted God a place in the natural universe, society and the individual human being had been expelled from this world. When he watched the apple fall, Newton did not ask about the social forces and events that led to the planting of the apple tree and the design of the garden, dictating the precise location of the falling apple. Nor did he ask about the domestication of fruit

trees that gave the apple its form. He asked, rather, about the "natural" event, defined in abstraction from its social context. Likewise the immediate object of Einstein's relativity theory was a world of atomic and subatomic motion in space-time, a world which did not even exist at the scale of direct human experience. The results of course were generalizable to material events at the social scale, just as Newton's law of gravity applied to the human body as much as the apple, but in both cases, social products and events illustrate the scientific principle not as social but as natural phenomena. The social definition and context of the falling (human) body is of no consequence where it is being used to illustrate gravity or relativity.

The positing of nature as an external object is neither arbitrary nor accidental. Although the connection between industry and scientific method is somewhat obscured today, it was quite apparent to Bacon. In the labor process, human beings treat natural materials as external objects of labor to be worked up as commodities. Producers put the "mechanical arts" between themselves and the objects of labor in order to increase the productiveness of the labor process, and so if science is to function as the means for developing these "mechanical arts," then it too must treat nature as an external object. A "science" based on the moral logic of protestant religion might have a number of benefits, but such a moral logic would be of little use in developing the mechanical arts. Nearly a century later, Newton affirmed the same direct relationship between science and "mechanical practice."[6] Today, not all science remains so directly tied to productive activity; no longer an embryonic pursuit, science has become an increasingly important social institution with a life and logic of its own. If, through mass industrial laboratories, science has been harnessed to industrial capitalism as never before, still, through pure research centers it has won some independence from direct productive needs. But the point here is that however closely science is tied to industry today, it still shares with Bacon and Newton the epistemological assumption of an external nature, objectified in theory just as it is objectified in practice in the labor process.

But in the tradition of modern science, nature is not just external. It is simultaneously universal. In the early tradition, the source of unity and universality was religious whereas today it is secular. For Bacon, the religious clothes in which he dressed science were not a politically motivated optional extra but were integral to the scientific endeavor. Bacon accepted the biblical version of creation, and if the harmonious unity of nature was broken by mankind's Fall from the Garden, the rupture was only partial and temporary. Science was a godly pursuit insofar as, through science and the mastery of nature, human beings could restore the harmony of nature, thus implementing God's will. However much he separated external nature from the social world, Bacon insisted that "natural" and "artificial" objects possessed the same kind of form and essence, differing only in their immediate causes.[7] If the equation of nature and form has not survived, the equation of nature and essence is a keystone of our contemporary language and thought. By the "nature" of some object or event we mean its essence, what it is beneath its appearance. Social or natural, all phenomena have an essence; nature is universal in this sense.

In Newton, the universality of nature also had a clear physical interpretation in the universality of his natural laws, but like Bacon, Newton's vision of a universal nature is built on religious precepts. Newton opposed earlier conceptions of space and matter; with his concept of absolute space, which to this day is the main influence on our commonsense notions of space, Newton opened up the possibility that space and time, not matter, are the basic elements of nature. Under pressure from religious and philosophical criticism, Newton came increasingly to identify absolute space with God, and he insisted toward the end of his life that all of his discoveries in physics were subordinate to his philosophical conception of absolute space. If the movement of objects was entirely determined, by physical laws, the space in which they moved was a manifestation of the omnipresence of God. Thus we can speculate that connected with the ideology of nature will be an ideology of space.[8]

Contemporary science also employs a universal concept of nature but

it is no longer religious in tone. Since Darwin, it has been traditional to view biology as systematically rather than accidentally historical. Human biology was simply one part of this system. Thus Darwin provided the scientific foundation for treating certain social phenomena in the same framework as chemical and eventually physical events. Some of Darwin's key biological insights, it should be remembered, were borrowed from nineteenth-century political economy. Now those using and often abusing Darwin have attempted to extend Darwin's insights back into the social world. The latest and most sophisticated attempt at this comes from sociobiology, the authors of which claim to explain the intricacies of individual and social behavior by reference to biology; society is become a biological artifact.[9] That this biological reductionism is not endorsed by most biologists is not the point. The vision is of a universal nature with biology the vital fulcrum; human nature is simply a subset of biological nature.

More credence is given by the majority of scientists to the physical theory of universal nature. According to this conception, it is the physical not the biological world which lies at the base of nature. With Einstein's refutation of Newton and the emergence of quantum theory, there is certainly a debate over whether space and time or matter are the basic elements of physical events. But no matter how we answer this question, the conception is one which reduces biological events to physical events, either directly or via chemistry. It is probably fair to say that this view of the universality of physical nature is the most widely accepted. At root, the stuff of nature is matter; in its "nature," nature is material. The search for physiological explanations of psychological behavior implies this view. The physicist Carl Friedrich von Weizsäcker has provided an optimistic programmatic depiction of the "unity of nature" thesis. Physics, he says, is the "science which ought to give expression to the unity of nature." There are three basic steps to comprehending the unity of nature. First, the realms of organic and inorganic nature must both be reduced to physics, implying a physicalist theory of biology; second, there must be a "genetic embedment of man in nature through the theory of

human evolution"; and third is a "physicalist theory of human performance" pioneered by cybernetics.[10] Though Weizsäcker is not himself a positivist, he has given voice here to the larger if often unstated project of positivist science. For at the same time as he asserts the unity of nature he also accepts its division, as when, in describing the second stage, he contrasts man and nature. Nature is somehow both external to man, that which is not man, and it is man as well as nature. In Weizsäcker too, then, there are two natures: the one outside human beings and the one that includes them.

II. Poetic Nature—American Landscape

In the conclusion to his influential study of the American landscape as symbol and myth, Henry Nash Smith wrote: "the capital difficulty of the American agrarian tradition is that it accepted the paired but contradictory ideas of nature and civilization as a general principle of historical and social interpretation." Nature, and particularly the nature experienced in the geographical landscape, was what Smith called a master symbol or image in nineteenth-century America. As wilderness or garden, primal or arcadian, the image of the landscape embodied the hope and the promise of the American future. This poetic fusion of physical geography with cultural myth is what Leo Marx calls the moral geography of nineteenth-century America. In part this moral geography is uniquely American since there the contradiction between nature and "civilization" was more abrupt than in the Old World. The progressive aspirations fostered by early capitalism were at one and the same time comparatively unfettered by preceding social forms yet confronted head on by a geographic nature more profoundly formidable than a decaying feudalism. In America, with its paucity of established institutions, "the relation between mankind and the physical environment is more than usually decisive."[11] Where the dominant social symbols of the Old World drew their strength and legitimacy from history, New World symbols were more likely to invest in nature.

If nature is therefore a sharper social symbol and more revealing in

the American tradition, this should not be taken as implying its simplicity. For all its symbolic power, the image of nature is indescribably complex. Yet it is possible to make some generalizations concerning the conception of nature that resulted from the American journey into the wilderness. For along with the scientific experience of nature, this poetic experience of nature is the dominant influence on the concept of nature which today we take for granted. This applies not just to America, geographically or culturally defined, but to the Old World too. In the first place, though it may have been particularly abrupt, the confrontation with nature was not uniquely American but a result of emergent industrial capitalism. Much in this experience was therefore shared across national boundaries. Second, the American cultural experience has itself come to influence the Old World from which it developed. There is no doubt concerning the nationalism invested in the American image of nature, but it was not an image that could be privately owned as the land itself would be. From the very beginning, certainly from Shakespeare's time, the American image of nature was in part a European artifact. "The topography of *The Tempest,*" says Leo Marx, "anticipates the moral geography of the American imagination." In a more general vein, Roderick Nash notes the "deep resonance of wilderness as a concept in Western thought."[12] From a brief examination of this treatment of "nature" it will be possible to illustrate the same conceptual dualism of external versus universal nature which we saw in the scientific vision of nature. As before, we begin with external nature.

Having visited the wilderness of Michigan Territory in July 1831 on his trip from Europe, the young Alexis de Tocqueville had this to say about the American view of nature:

> If I readily admit that the Americans have no poets; I cannot allow that they have no poetic ideas. In Europe people talk a great deal of the wilds of America, but the Americans themselves never think about them; they are insensible to the wonders of inanimate nature and they may be said not to perceive the mighty forests that surround them till they fall beneath the hatchet. Their

> eyes are fixed upon another sight: the American people views its own march across these wilds, draining swamps, turning the course of rivers, peopling solitudes, and subduing nature. This magnificent image of themselves does not meet the gaze of the Americans at intervals only; it may be said to haunt every one of them in his least as well as in his most important actions and to be always flitting before his mind.[13]

The same themes are repeated throughout the literature of conquest, often quite graphically, from puritan times well into the nineteenth century. Cotton Mather's Massachusetts forests were the primeval lairs of dragons, devils, witches, and "fiery, flying serpents"—mythical beings, to be sure, yet the products not of pure imagination but of a puritan imagination let loose on real events. And although the language was refined, the imagination less active, and the emphasis was on the conquest more than the conquered, the nineteenth-century literature of conquest reflects the same antipathy to wild nature.[14] The wilderness is the antithesis of civilization; it is barren, terrible; even sinister, not just the home of the savage but his *natural* home. The wilderness and the savage were as one; they were obstacles to be overcome in the march of progress and civilization.

This tradition of repugnance emanates directly from the frontier itself where the externality of nature is most acutely felt. It is sufficiently resonant, to use Nash's word, that contemporary descriptions of the "urban wilderness" or "urban frontier" carry the same overtones of repugnance, deliberate or otherwise.[15] But as the wilderness was tamed, external nature took on a less threatening appearance. The hacking and hewing of nature gave way to its more careful dissection at the hands of science; fascination replaced fear. In terms of the artistic representation of nature, this transition can be seen in the emergence of a particular kind of nature painting—close, detailed studies of individual botanical or zoological species, or so-called nature studies. Scientists and artists alike—people such as Alexander Humboldt, Frederic Edwin Church, and J. J. Audubon—all contributed to this tradition with drawings, sketches, and

paintings of plants, flowers, and birds.[16] These specialized studies of natural objects in turn contributed to a broader social movement every bit as influential as the wilderness experience, if quite opposite in substance. Where the wilderness of the frontier was hostile, the humanized nature lionized by the late nineteenth-century "back to nature" movement was quintessentially friendly. Hostile or friendly, nature was external; it was a world to be conquered or a place to go back to.

The "back to nature" movement was the response not of frontier pioneers but of urbanites: "appreciation of wilderness began in the cities. The literary gentleman wielding a pen, not the pioneer with his axe, made the first gestures of resistance against the strong currents of antipathy."[17] Writing in such popular magazines as *House and Garden*, *Ladies Home Journal*, *Nature-Study Review*, *Good Housekeeping,* and many others, these "literary gentlemen" brought nature into suburban drawing rooms toward the end of the nineteenth century. Domesticated, sanitized, and sprawled out on coffee tables, nature belonged just like the family cat. Through a wide array of activities, many of them aimed at children, nature worship became a staple first for the middle class and then in more limited ways for the rest of urban America. Vacations into the wilderness became fashionable, especially once photography permitted the realistic depiction of scenery; backwoods sporting became popular, and summer camps took urban schoolchildren into the supposedly virtuous environment of raw nature. Nature study was brought into the schools, and fresh-air relief funds were established by social reformers to offer day excursions for slum children; the Boy Scouts were a means to inculcate civic values through the simplicity and combined comradeship and individualism of the backwoods experience.[18] Today the transformation of rural America into a playground for the cities is more advanced but summer camps, Boy Scouts, and hunting season remain; there and in the ubiquitous weekend "retreat" from the city, the vision of nature inherent in the "back to nature" movement finds its contemporary expression.

What had filtered into popular culture and activities by the end of the century was already apparent in earlier more exclusive intellectual

circles. To take just one example, it was conventional among landscape painters by the middle of the nineteenth century that there was a "fundamental opposition of nature to civilization, with the assumption that all virtue, repose, dignity are on the side of 'Nature'—spelled with a capital and referred to as feminine—against the ugliness, squalor and confusion of civilization for which the pronoun was simply 'it.'" This version of the nature-civilization distinction was pervasive certainly by the middle of the nineteenth century as the frontier de Tocqueville visited fell more and more under the axe and became more and more accessible through the railroads. But just as the vision of a hostile wilderness had its social function—that of legitimizing the attack on nature—so did the vision of a virtuous nature. According to the conservative historian George Mowry, the enthusiasm for nature and the outdoors represented an ecological nostalgia which "was convenient politically for America's ruling economic classes" in order "to foster the rural virtues."[19]

Although these traditions of hostility and idolatry share a view of nature as external, there is no simple linear development from the blunt utilitarianism of the frontiersman to the refined idealism of the back to nature buff. Those urban literary gentlemen who were devoted to the latter view of nature owed a substantial debt to a prior generation of literary gentlemen and artists who were responsible for the nineteenth-century romantic tradition. And it is with this tradition that the universality rather than the externality of nature is most apparent. So much has been written about romanticism by such able writers and from such diverse points of view that it is impossible here to be comprehensive or even representative. We shall only identify a few major themes with a view to suggestive illustration of universal nature.

It is only a contemporary prejudice which sees the nature-study sketches of individual birds and plants—each taken as an object in itself—as mere realism, somehow a less interpretive representation of nature than the products of romantic landscape painting. Omitting or devaluing the context or background in a botanical sketch is as much an interpretive act by the artist as the use of light to convey divine spiritual

presence, and the depiction of small human figures as overshadowed, sometimes almost lost, in a mighty and majestic nature. The latter conventions are only two of the commonest which typify the romantic landscapes of Cole, Church, Durand, and innumerable other artists. The common theme in these works is of God in nature. Nature is a holy text which everywhere bears the imprint of its heavenly origin and mankind is a part of this nature. There was in short a "Trinity of God, Man and Nature." If God was thus in nature, then the text of nature was seen to contain all kinds of moral truths which were directly painted into the landscape by nineteenth-century romantic artists. In this "christianized naturalism" God and nature ceased to be distinct; nature came to be not just God's text but God himself: "the unity of nature bespoke the unity of God." If on occasions, and especially in America, this christianized naturalism also took on a strong nationalistic flavor, still it implied the unity of mankind as a whole with God and nature. The ideology of manifest destiny, with its ambiguous mix of nationalism and religious universality, was built on precisely this foundation.[20]

A similar vision of the unity of nature is conveyed by many other contemporary writers. To take an obvious case, Emerson sees nature as only the phenomenal form of some deeper spiritual meaning. "Every natural fact is a symbol of some spiritual fact. Every appearance in nature corresponds to some state of the mind, and that state of the mind can only be described by presenting that natural appearance as its picture . . . every natural process is a version of a moral sentence." So intimate is this "unity of nature" that "it lies under the undermost garment of nature, and betrays its source in Universal Spirit." The "noblest ministry of nature is to stand as the apparition of god. It is the organ through which the universal spirit speaks to the individual and strives to lead back the individual to it." "Man" is nature's "head and heart, and finds something of himself in every great and small thing, in every mountain stratum, in every new law of color, fact of astronomy, or atmospheric influence which observation or analysis lay open."[21]

This idealist unity of nature is clearly different from the materialist

unity of Newtonian science even if God is indispensable to both. And yet it is not entirely different, as the following particularly cogent passage from Leo Marx suggests:

> Although scientific knowledge seemed to drain certain traditional religious myths of their cogency and power, so that it no longer was quite possible to read Genesis as it once had been read, the same knowledge enables artists to invest the natural world with fresh mythopoeic value. The movements of the heavenly bodies, space (an awesome, unimaginable infinity of space), and the landscape itself all were to become repositories of emotions formerly reserved for a majestic God. It was not enough to call this newly discovered world beautiful; it was sublime.[22]

Even for some of the transcendentalists, therefore, there was no necessary contradiction between industrial development and the sublimity of nature. If people like Thoreau tended to be antagonistic toward the march of industry into the countryside, Emerson actually welcomed such innovations as the railroad as a means to elicit a more complete and more perfect vision of nature. Increasingly, the God-centered Edenic vision of nature was edged aside by a more anthropocentric vision. If the original wilderness was a garden gifted by God, the new humanized garden was, for some, mankind's attempt to smooth the corners of nature into a more harmonious unity. The universality of nature was preserved in the pastoral ideal; the human figures and their artifacts loomed larger in the landscape while the divine light was softened.

But the potential contradiction did not disappear. The problem was that if scientific and industrial advance was progressively subduing nature, then of necessity it was subduing the God that resided in nature—an unacceptable blasphemy. It was "expediency," according to Novak, which "strongly suggested that nature could be 'humanized' without violating nature-as-God."[23] And humanized it was. The images were stretched to new lengths. Insofar as Americans shared a popular view of their destiny, they saw themselves as "creating a society in the image of a garden." Now that the machine was squarely in the garden, there

emerged the "rhetoric of the technological sublime."[24] Machine technology was seen as a proper part of the landscape. Just as Mowry noted the ideological function of an external nature pictured as virtuous, Leo Marx points out the class basis of the very form of the garden landscape. Referring at first to the eighteenth-century English garden, he says that the "formal style of garden which [Addison] rejects embodies a purely aristocratic, leisure-class ideal of conspicuous waste. It separates beauty from utility and work." Marx implies the extension of this analysis to the "whole rural scene," claiming that Addison did likewise.[25]

Stretched to this extent, the bubble of contradiction had to burst. The rapid demise of the romanticism of nature is traditionally traced to Darwin, but this was more a trigger than a single isolated case. The end of romanticism did not however mean the end of universal nature. This vision lives on either in science, in the idealism of the contemporary "back to nature" ideology, or as a mixture of both in the nostalgic wing of the ecology movement. The reality of industrial production eventually overpowered the romanticism of nature as an artistic and intellectual tradition, if not quite the individual romantic tradition.

The dualism of nature suggested here—the opposition of an external and a universal nature—has not received explicit attention in the philosophical literature. On occasion, however, it has been implied. Thus Joshua Taylor, in his study of *America as Art,* remarks that "wilderness as transcendent union with reality in nature and wildness as escape from the constraints of civilization are visions that have some ambiguous similarities, despite their great differences." And Emerson, in the introduction to his essay, distinguishes two meanings of "Nature" which bear some similarity to the universal and external concepts.[26] In making the dualism explicit, we have separated the two concepts but in reality they are closely related. This is most easily seen in the relation of romantic nature to nature as the object of the ravages of industrial progress. The romanticism of nineteenth-century America was a direct response to the successful objectification of nature in the labor process. This is true in two senses. First, the romanticization of nature was not

even possible until nature had already been substantially subdued, for as long as most Americans were fighting nature as a means of survival, romanticism would have been insane, even suicidal. One does not pet a rattlesnake until it has been de-fanged; only then does one take it on the road so that one and all can marvel at its natural beauty.

Second, romanticism was not just a possibility but an ideological necessity. The conquest of wilderness was nowhere as swift, as brutal, or as blatant as on the rapidly advancing American frontier, and the deeper the swath cut by civilization into the body of God and nature, the more extreme were the attempts at legitimation. "The most utilitarian conquest known to history had somehow to be viewed not as inspired by a calculus of rising land values and investments but (despite the orgies of speculation) as an immense exertion of the spirit." Or as the art historian Novak has it, the "religious, moral, and frequently nationalist concept of nature" of the romantic tradition contributed "to the rhetorical screen under which the aggressive conquest of the country could be accomplished."[27]

It is a commonplace, and it was alluded to above, that nature is often envisioned as female. As complex and as sodden with metaphor as the concept of nature is, probably no metaphor is as prevalent or as deep-seated as the femininity of nature. It is striking that the treatment of women in capitalist society parallels the treatment of nature. As external nature, women are objects which mankind attempts to dominate and oppress, ravage and romanticize; they are objects of conquest and penetration as well as idolatry and worship. The language is exact. Women are put on pedestals, but only once their social domination is secure; precisely as with nature, romanticization is then a form of control. But women can never be wholly external since in them resides fertility and the means of biological reproduction. In this sense they are made elements of universal nature, mothers and nurturers, possessors of a mysterious "female intuition" and so on. This is not the place for a history of the feminine metaphor of nature, nor for an analytical treatment; despite the insights that such studies offer—concerning the oppression

of women, the ideology of nature, and the development of the social relation with nature—comparatively little work has been done.[28] The purpose here is simply to point out the similarity of treatment which makes femininity such a "natural" metaphor for nature.

Finally, we can make much more explicit the interrelatedness of the external and universal concepts, in terms of the scientific and poetic experience of nature. It is traditional to view the nineteenth-century American experience of landscape as a journey into nature albeit one which ended back in the city. But the eventual destination was not simply the old city from which the journey began; it was in Bernard Rosenthal's words "the city of nature."[29] It was a journey into raw wilderness and through to an arcadian vista. In this sense it can be seen as a continual journey from external nature into universal nature, from the blunt factual externality of nature into its animated spiritual universality. In our experience of national parks, mountain retreats, and weekend vacations in the country, we experience a similar journey from the externality of nature, as experienced from the city, to the universality of nature in which we endeavor to immerse ourselves. Externality is replaced by universality, at least for the weekend. This poetic journey into nature starts off where the scientific journey ends; if the poetic journey begins from the externality of nature which it strives to universalize, the scientific journey accepts the universality of nature—as matter or as space and time—which it strives continually to convert into an external object of labor. In that the romanticism of nature was a reaction to industrial progress, the scientific and poetic experiences are related through the production process, and this is precisely where external and universal nature find common ground.

In summary, then, the concept of nature harbors an essential dualism between external and universal. These two conceptions of nature are both interrelated and mutually contradictory. Indeed, we might even suggest that each is dependent on the other in the sense that without an external nature there is no need to stress the universality of nature. The external conception is a direct result of the objectification of nature in

the production process. And yet, no matter how efficient this production process and how completely it effects the externalization of nature—in a word, no matter how effectively it emancipates human society from nature—human beings, their society, and their artifacts continue to be subject to "natural" laws and processes. The external conception therefore gives us only part of the picture of nature; a concept of nature is also necessary by which it is possible to explain human societies in nature.

Now this conceptual dualism of nature is problematic. Are there actually two natures in reality? If not, if the dualism is said to be merely "epistemological not ontological," can we be content with a dual conception of a single reality? That it is philosophically unsatisfactory, however, is not the only or even the most important problem. The concept of nature is a social product and as we saw in connection with the treatment of nature on the American frontier, this concept had a clear social and political function. The hostility of external nature justified its domination and the spiritual morality of universal nature provided a model for social behavior. This is what is meant by the "ideology" of nature. I take ideology to be "an inverted, truncated, distorted reflection of reality." Ideology is not simply a set of wrong ideas but a set of ideas rooted in practical experience, albeit the practical experience of a given social class which sees reality from its own perspective, and therefore only in part. Although in this way a partial reflection of reality, the class attempts to universalize its own perception of the world.[30]

Now it is not of great importance whether one agrees precisely with this definition of ideology or, indeed, whether one even accepts the attribution of the label "ideology" to this contradictory dualism of nature. The substance is the thing, and although it may seem more obscure today than in connection with the American landscape a hundred years ago, the updated concept of nature has a similar function. First, nature has been tamed enough now that the hostile connotations are generally reserved for extreme, infrequent events such as high seas, floods, and hurricanes. Whether hostile or not, the fact of the externality of nature is enough to legitimate nature's subjugation; indeed this process of sub-

jugation has itself come to be treated as "natural." Second, and more important today, is the ideological function of the universal conception. This no longer acts as a "rhetorical screen" to justify the conquest of external nature, nor a moral vision to stimulate social behavior suitable to the ruling class. These functions have come together. The effect is still one of conquest—or more accurately control—and the target is still social behavior. The overriding function of the universal conception today is to invest certain social behaviors with the status of natural events by which is meant that these behaviors and characteristics are normal, God-given, unchangeable. Competition, profit, war, private property, sexism, heterosexism, racism, the existence of haves and have nots or of "chiefs and Indians"—the list is endless—all are deemed natural. Nature, not human history, is made responsible; capitalism is treated not as historically contingent but as an inevitable and universal product of nature which, while it may be in full bloom today, can be found in ancient Rome or among bands of marauding monkeys where survival of the fittest is the rule. Capitalism is natural; to fight it is to fight human nature.

The human-nature argument is one of the most lucrative investments in the bourgeois portfolio. It is the jewel in the crown of universal nature.[31] But it is important to understand that the human-nature argument dissolves into nothing if for any reason at all the externality of nature is denied. For "human nature" to fulfill its ideological function there must be a separate nature with its own inviolable powers, for it is from this nature that the *human*-nature argument draws its sustenance. Now in order to maintain this powerful ideological concept in all its fragile contradiction, there is an odd and revealing omission from the concept of nature. By definition, external nature excludes human activity, but universal nature also excludes human activity except in the most abstract sense that labor is necessary and dignified. Leo Marx's "rhetoric of the technological sublime" and the image of the machine in the garden are the exceptions that prove the rule. There we saw that despite the presence of human artifacts the idea conveyed by the human-

ized "middle landscape" is that machine technology is thoroughly integral to the landscape but was made so only by excluding real concrete labor and by naturalizing the human artifacts that would otherwise have encroached on nature.[32] The exclusion of concrete labor from the universality of nature is not just a means of denying the working class its history, nor simply a ritual acquiescence to the delicate sensitivities of the leisured classes, for whom, upon being confronted with the real source of their wealth, the very sight of work brings on a swoon. Just as much it is an exorcism of social activity from universal nature in order to attenuate the contradiction between external and universal nature. The possibility of the socialization of universal nature is ultimately denied not on the basis of historical experience but by the contradiction with external nature. This is the ideology of nature.

III. Marx and Nature

If this depiction of the ideology of nature is correct, it should hardly be surprising that in the social sciences, nature is largely ignored: nature is the object studied by natural science, *society* is the object of social science. But it was not always this way. In the eighteenth-century political-economy tradition, the physiocrats posited "nature" as the direct source of value. They conceived agricultural labor as the sole means of producing value. With Adam Smith's labor theory of value, the priority of agricultural production, and with it external nature, was denied. From then on, the classical tradition increasingly treated nature not as a central element of economic theory, more as a limiting boundary to economic development, or in its vicissitudes a cause of crisis. From Ricardo to Malthus and Mill, nature was increasingly made into an external factor. This devaluation of nature in theory paralleled its actual debasement in reality, whether in the countryside or in the workplace. As political economy shed its more embarrassing political implications to become simply economics, the academic division of labor asserted itself, generating a number of social sciences to explain fragmented divisions of knowledge that had once been covered under the umbrella of

political economy. From psychology to anthropology, political science to geography, where nature was even considered, the dual concept was reiterated. From discipline to discipline the emphasis varied, but nature tended to appear either as external or as human nature.[33]

Today one tradition stands out in opposition to the dualistic treatment of nature. Writing in the middle of the nineteenth century Karl Marx explicitly attempted an analytical reconciliation of nature and history and was clearly aware of the ideological import of universal nature. Thus he observes of the formulae of nineteenth-century political economy that they "appear to the bourgeois intellect to be as much a self-evident necessity imposed by nature as productive labor itself. Hence forms of social production that preceded the bourgeois form are treated by the bourgeoisie in much the same way as the Fathers of the Church treated pre-Christian religions."[34] Marx insisted vigorously upon the unity of nature and history, going so far as to suggest even in his day that virtually no nature existed any more which predated human history. Still, given Marx's own treatment of nature, it may not be unreasonable to see in his vision also a certain version of the conceptual dualism of nature. In his earlier work, where he discussed the relation with nature extensively, the emphasis is squarely on the unity of nature, but in his later work, which is less philosophical, more analytical and concrete as well as concise, nature seems to enter more often as an object of labor in the production process. The promise of a unified nature and history is clearly made in the earlier work, but by the time he wrote the later works, he was no longer so concerned to elaborate his conception of nature.

Marx, then, was aware of the problems of a dualistic conception of nature, but without examining his work in greater detail, it is not immediately clear whether in practice he himself avoided this pitfall and whether, therefore, his work offers insights leading toward a plausible alternative conception of nature. It is to this task that we now turn. It is not necessary in the first place to scour Marx's entire collective works in order to isolate his different treatments of nature. This painstaking and ambitious project has already been accomplished by Alfred Schmidt

in his difficult but definitive study of *The Concept of Nature in Marx*. Schmidt's work is of the Frankfurt School, who, it is fair to say, have been much more concerned to elucidate Marx's conception of nature than have succeeding generations of marxists. Somewhat like Marx's concept of nature itself, Schmidt's work has been enthusiastically but uncritically received by marxists, and like Marx's concept of nature, deserves better. We therefore begin with Schmidt and the vantage point he offers. While admittedly a "contribution to the philosophical interpretation of Marx,"[35] and thus squarely in the Frankfurt School tradition, Schmidt's exposition is also exceptional in that it focuses deliberately on the less philosophical works of the later Marx—*Capital* and *Grundrisse*.

Nature and Society

Throughout his exposition of Marx's concept of nature, Schmidt perceptively focuses on the relation between nature and society rather than nature in itself. As he points out, quoting Marx, nature separate from society has no meaning since a "nature that preceded human history . . . today no longer exists anywhere" (p. 33). The relation with nature is a historical product, and even to posit nature as external to society (a primary methodological axiom of positivist "science," for example) is literally absurd since the very act of positing nature requires entering a certain relation with nature. However ideal this relation might be, it is nevertheless a relation *with* nature. Throughout, Schmidt maintains that "the priority of external nature remains unassailed," but he insists that this very distinction between a prior and a nonprior (i.e., a "socially mediated") nature has meaning only if a previous distinction is made between human beings and nature. But according to Schmidt, this is a distinction that occurs *within* nature. To express the differentiated unity of nature and society that results from this conception, Schmidt adopts the philosophical language of Subject and Object, suggesting that Marx's concept of nature should be seen at root as a dialectic of Subject and Object.

> Marx defined nature (the material of human activity) as that which is not particular to the Subject. . . . He did not mean that this extra-human reality was to be understood ontologically in the sense of an unmediated objectivism. . . . Nature as a whole was for Feuerbach an unhistorical, homogeneous substratum, while the essence of the Marxist critique was the dissolution of this homogeneity into a dialectic of Subject and Object. Nature was for Marx both an element of human practice and the totality of everything that exists. (p. 27)

Having identified the general terrain in this way, Schmidt proceeds to unravel some of the specific relations that constitute the internal dialectic of Marx's concept of nature. He makes a useful distinction between "first nature" and a "second nature." These were concepts used by Hegel, and here Schmidt is at pains to distinguish Marx from Hegel while at the same time demonstrating Marx's debt to Hegel: "Hegel described the first nature, a world of things existing outside men, as a blind conceptless occurrence. The world of men as it takes shape in the state, law, society, and the economy, is for him 'second nature,' manifested reason, objective Spirit." Marxist analysis, Schmidt says, "opposes to this the view that Hegel's 'second nature' should rather be described in the terms he applied to the first: namely as the area of conceptlessness, where blind necessity and blind chance coincide. The 'second nature' is still the 'first.' Mankind has still not stepped beyond natural history" (pp. 42–43). For Marx, Schmidt explains, "society itself [second nature] was a natural environment" precisely because "men are still not in control of their own productive forces *vis-à-vis* nature" (p. 16).

Society is internal to nature, Schmidt emphasizes, yet they are in no way identical. Rather, nature is mediated through society and society through nature. Marx denoted this mediation more precisely as a metabolism or metabolic interaction, a concept which Schmidt sees as crucial to Marx's notion of nature. "With the concept of 'metabolism' Marx introduced a completely new understanding of man's relation to nature [and] went far beyond all the bourgeois theories of nature presented by

the Enlightenment" (pp. 78–79). Schmidt is particularly perceptive in identifying the source of Marx's historical originality, for it is not the concept of metabolism itself that is new but the context in which Marx used it. Specifically, Marx saw the labor process as the motive force of this metabolic interaction. In labor, Schmidt explains, "men incorporate their own essential forces into natural objects [and] natural things gain a new social quality as use-values." Hence "nature is humanized while men are naturalized" (p. 78). Within this metabolic interaction, nature provides labor with both its Subject and its Object—the laborer (with his or her natural capacities and a purposive intent) on the one side, the object of labor (material to be transformed) on the other.

The appropriation of knowledge is equally a part of this metabolism between human beings and nature. Thus Schmidt insists that for "the materialist Marx . . . nature and its laws subsist independently of all human consciousness and will" but that such laws can only be formulated "with the help of social categories. The concept of a law of nature is unthinkable without men's endeavors to master nature" (p. 70). Just as the object of knowledge is a unity of first and second nature, science (the process of appropriating knowledge) is a unified endeavor. Since the centerpiece of Marx's methodology was the dialectic, but since he restricted himself to a science of society, this immediately raises the question of the dialectic of nature: what does a dialectical science of nature look like? Engels attempted to answer this question by viewing natural processes as themselves dialectical, and Schmidt's critique of the resulting "dialectics of nature" is both precise and insightful. Under Stalin the dialectic of nature became codified as official Soviet doctrine, an elevation to the level of metaphysics which Schmidt correctly sees as symptomatic of the original theoretical status of Engels's concept. For ultimately, "Engels's dialectic of nature necessarily remained external to its subject-matter" (p. 52); the attempt to inject nature with the dialectic already presupposed nature as external to human society, as an Object separate from its Subject, and thereby denied the very condition that would allow the dialectic to operate. "There can be no question of a dialectic of external

nature, independent of man, because all the essential moments of a dialectic [the Subject in relation to the Object] would in that case be absent" (p. 59). Rather, the "dialectic of nature" arises from none other than the metabolic interaction of human societies with nature:

> Nature becomes dialectical by producing men as transforming, consciously acting Subjects confronting nature itself as forces of nature. Man forms the connecting link between the instrument of labour and the object of labour. Nature is the Subject-Object of labour. Its dialectic consists in this: that men change their own nature as they progressively deprive external nature of its strangeness and externality, as they mediate nature through themselves, and as they make nature itself work for their own purposes. (p. 61)

NATURE AND UTOPIA

Having sketched this basic outline, Schmidt develops an interpretive assessment of Marx's concept of nature, aimed at making more concrete the relation of nature and history. The metabolism of humans with nature, he suggests, is an absolute given in Marx; it can be "transformed but not abolished" (p. 76). Since "with the concept of metabolism Marx presented a picture of the social labour-process as a process of nature," he also meant to show that the labor process in its essential material aspects, is unchanging—an "eternal nature-imposed necessity" (pp. 91–92). The concrete *form* taken by this metabolism may change historically, however, and Schmidt distinguishes a "pre-bourgeois" from a "bourgeois" relation with nature. In the pre-bourgeois era, "man is as yoked to his natural existence as to his body," and hence there is an "original . . . abstract identity of man with nature." With the emergence of bourgeois conditions of production, this identity changes into its equally abstract opposite: the radical divorce of labor from its objective natural conditions (pp. 81–82). He sees pre-bourgeois society as "nature-like and unhistorical" (p. 171), as contrasted with bourgeois society which is social and truly historical. Describing these periods as two world-historic stages in "man's domination of nature," Schmidt notes

that the early predominance of nature over history and of the Object over the Subject is reversed in bourgeois society; with capitalism history dominates nature, the Subject dominates the Object (pp. 121, 177). For Schmidt, therefore, "there are, strictly speaking, only two truly historical dialectics for Marxist theory: the dialectic of the transition from the classical-feudal to the bourgeois epoch . . . and the dialectic of the cataclysmic and liberating transition from the bourgeois epoch to that of socialism" (p. 180).

As part of the metabolic interaction, the appropriation of knowledge must embody the abstract ahistoricity of metabolism as well as its historically changing forms, and this distinction is reflected in Marx's epistemology. Thus Schmidt distinguishes "economic categories" in Marx from "logico-epistemological categories." Whereas the economic categories are historically contingent, Marx's logico-epistemological categories "have a more general and comprehensive validity" (pp. 123–24). This conclusion about Marx's "epistemology," and the thesis of "metabolism" on which it is based, provide the platform from which Schmidt argues Marx's utopianism. "Marx, precisely because he agreed with Hegel in rejecting the construction of abstract Utopias, became probably the greatest Utopian in the history of philosophy" (p. 127).

Schmidt detects in Marx's concept of metabolism what he labels a "negative ontology." This negative ontology results from Marx's belief that metabolism is an "eternal nature-imposed necessity," and it leads him to indulge in "nature-speculation" since his negative ontology implied a certain anticipation or speculation about the future relation with nature (pp. 80, 127). Marx was not, however, ideological in the usual sense, but "limited himself, as a materialist, to what Hegel called 'the finite—ideological standpoint'" (p. 99). According to this standpoint, human beings mediate their practical activity in nature with a "purposive will"; hence, "in *Capital,*" Schmidt says, "Marx discussed exhaustively the way in which the 'purposive will' of man triumphs over nature" (p. 100). Since this purposive will contributes to the active ingredient of all metabolic interaction, Schmidt concludes that in "the view of Marx (as

of Nietzsche) man's 'will to power' over things and his fellows originally underlies his intellectual activity" (p. 111).

Marx's utopianism, then, consisted in his "vision of the future" (communism) as a time when "man and nature" live in harmony rather than conflict; Subject and Object are reconciled in a "higher synthesis" based on a fully developed metabolism between man and nature. This "unadmitted Utopian consciousness" is quite evident in Marx's early work and, according to Schmidt, Marx himself worked to expunge it. But it nonetheless remains in his later work, Schmidt says, and he proceeds to accuse Marx of predicting the end of ideology, and of reducing the problem of freedom to free time, thereby making culture the "complete antithesis of material labour" (pp. 142–44). More fundamentally, Schmidt claims that Marx's attitude toward technological development was essentially positive, that technology was an emancipatory force. Marx "had in mind the *total automation* of industry, which would change the worker's role more and more into that of the technical '*overseer and regulator.*'" He therefore expected the "advancing development of machinery" under capitalism to result "in a humanization of the labour process" (pp. 146–47), leading eventually to socialism; the same "ceaseless transformation of nature in industry also proceeds under socialist conditions" (p. 147).

Against this apparent utopia, Schmidt asserts that technological development, as part of the necessary metabolism with nature, is the source of domination, not emancipation. Even in a classless society with its newfound solidarity among people, "the problem of nature, *as an object to be mastered*, continues to exist" (p. 136, my italics). The struggle with nature is common to all forms of society including socialism, and even if human society succeeds in emancipating its own internal nature by abolishing the domination of one class by another, it cannot escape from dominating external nature. "The new society is to benefit man alone, and there is no doubt that this is to be at the expense of external nature. . . . even in a truly human world there is no full reconciliation of Subject and Object" (pp. 155–58). Schmidt anticipates a technologically

precipitated destruction of a more fundamental nature than anything Marx envisaged:

> Today, when men's technical possibilities have outstripped the dreams of the old Utopians many times over, it appears rather that these possibilities, negatively realized, have changed into forces of destruction, and therefore, instead of bringing about an albeit always humanly limited salvation, lead to total destruction, a grim parody of the transformation intended by Marx, in which Subject and Object are not reconciled, but annihilated. (p. 163)

PHILOSOPHY AND POLITICS: A CRITIQUE OF SCHMIDT

Schmidt's exposition is closely argued; quotations and citations from the original sources pepper every page. In its comprehensiveness and encyclopedic detail, his account of the concept of nature in Marx is both impressive and the most exhaustive available. Had his work received more general and critical attention, it would not have been necessary to begin here with such a detailed summary of his argument, but in the absence of such attention it has been necessary to give the high points and central logic of Schmidt's exposition and also its flavor. For ultimately, the result of Schmidt's excellent philosophical pedantry is a vision of nature quite opposite to the spirit and practical intent of Marx's later work. Thus when reading Schmidt, one has the uneasy feeling that his text was two coherent levels of meaning and that these diverge as the exposition proceeds. On the one hand we are treated to a surface movement where Marx and Schmidt are essentially indistinct; the analysis seems all very reasonable until we somehow arrive at the point where Marx becomes a utopian. But woven into this we are presented with a second, deeper reading of Marx which builds as it proceeds, and which accumulates individually novel interpretations into a vision fundamentally different from Marx's. It is clearly possible, even plausible, that a somewhat utopian concept of nature remains embedded in Marx's later work. But since Schmidt's own project was to point out only "the philosophical content (or at least the philosophically relevant content) of Marx's post-

1850 work" (pp. 9–10), it is at least equally plausible that Schmidt not Marx is the source of utopianism.

And this, I will argue, is precisely what has happened. The accusations of utopianism are not at all arbitrary but are a logical outcome of the nature-philosophy Schmidt depicts, a nature-philosophy that is wholly Schmidtian. There are in Schmidt two concepts of nature, not one, and it is this duality which, like the contradictory duality of the bourgeois concept, opens the door to unbridled romanticism and utopianism. As shall become clear, this duality results from the particular philosophical lenses through which Schmidt interprets Marx. So deeply have these philosophical lenses affected his vision of Marx that, incredible as it sounds, Schmidt ends up providing us with one of the most elaborate accounts of the *bourgeois* concept of nature. In Schmidt too there is an external conception of nature (nature as the object of labor, external to society) and a universal conception (nature as the unity of society and nature). Despite all attempts to demonstrate a "dialectic" between these concepts, and despite all of Schmidt's philosophical *assertions* as to their unity, these concepts remain *practically* separated in his account.

It is possible to extract many quotes from Schmidt that demonstrate his dual concept of nature. For sake of illustration, three will suffice: "While natural processes independent of men [the external conception] are essentially transformations of material and energy, human production itself does not fall outside the sphere of nature [universal conception]" (p. 77); "the mutual interpenetration of nature [external conception] and society . . . takes place within nature [universal conception]" (p. 16); "the socially imprinted character of nature [universal conception] and nature's autonomous role [external conception] constitute a unity" (p. 70); and so on. In short, although Schmidt recognizes the necessity of "unfolding the concrete dialectic" between these different conceptions or "moments" (p. 67), it is a task he never accomplishes. By always stressing but nowhere demonstrating the unity of these conceptions, he gives us what he himself calls (in a different context) "truth expressed in an untrue form" (p. 27). This dual conception precipitates

a number of other dualities throughout Schmidt's concept of nature, and as these unfold it becomes increasingly clear that the dualism is not simply a philosophical imperfection in an otherwise accurate account. Take, for example, Schmidt's attempt to historicize the metabolism with nature by dividing world history into two epochs and identifying two historical dialectics. In the pre-bourgeois era "nature is appropriated through agriculture and is therefore absolutely independent of men," Schmidt claims, and "men" are therefore "abstractedly identical with nature. They lapse, so to speak, into natural existence." But in the bourgeois era, Schmidt continues, "where men succeed in universally mastering nature technically, economically and scientifically by transforming it into a world of machines, nature congeals into an abstract in-itself external to men" (p. 82). That is, the universal conception of nature is appropriate to the pre-bourgeois era while the external conception best depicts the "bourgeois era."

This historical distinction is clearly an important prelude to Schmidt's concluding discussion of the domination of nature. Nonetheless it is theoretically simplistic and mechanical. It is no accident that here and throughout his work Schmidt refers to *men* for it is not immediately clear that he is concerned with women at all. He sees pre-bourgeois history as "nature-like and unhistorical" and describes the physiological division of labor (based on gender and age) as a natural division of labor, in contrast to the social division developed under capitalism (pp. 170–71). The political consequences of squeezing the historical categories into the dualistic conception of nature are obvious. Since the oppression of women *as* women results from a division of labor that predates the "bourgeois era" the oppression of women becomes for Schmidt "natural." He abstracts from the real social character of the physiological division of labor.[36] It is striking in Schmidt's work that if the distinction between men and women were to be clarified and developed, his philosophy would make sense only if women were treated as a part of nature. Much as he has a concept of nature that is both external and universal, Schmidt has a concept of "man" with which he sometimes refers to women and men both, sometimes just men.

It is necessary to make two connections here: first to pinpoint the particular philosophical project that led to the dual conception of nature; second, to identify the specific misreading of Marx that facilitated Schmidt's misconception of nature, and to show the resulting political consequences. Whereas much has been made of Marx's debt to Hegel—a debt Schmidt acknowledges and discusses—much less has been made of his debt to Kant. Schmidt's work was meant to help redress this ommission.[37] Hence he suggests that Marx adopted "an intermediate position" between Kant and Hegel and though only "crudely sketched" in this book, Schmidt's aim was to determine more exactly this intermediate position (p. 12). Kant had struggled with the rigid separation of Subject and Object, trying but ultimately failing to reconcile an active creative Subject with an Object existing "in-itself." Hegel, following Kant, succeeded, but only by dissolving the Object into the Subject, nature ultimately into history—the history of its own concept.[38] It was left for Marx to reconstruct the dialectic: to prize apart Hegel's eventual identity of Subject and Object without at the same time making them irreconcilable as in Kant.

Yet Schmidt has achieved something different from the reconstruction of the dialectic attempted by Marx. According to Schmidt, Marx's

> materialist critique of Hegel's identity of Subject and Object *led him back to Kant*, although again this did not mean that being, in its non-identity with thought, appeared as an unknowable "thing-in-itself" . . . Marx both retained Kant's thesis of the non-identity of Subject and Object and adopted the post-Kantian view, no longer exclusive of history, that Subject and Object entered into changing configurations. (p. 121; my italics)

These "changing configurations" of Subject and Object are of course what Schmidt sought to illustrate with his historical account of the metabolism with nature—a pre-bourgeois epoch in which nature dominates history and the Object dominates the Subject, and a bourgeois epoch in which the reverse occurs. But since the metabolism with nature is an ahistoric given and only its form can change, there is a dual conception of the relation between Subject and Object operating in Schmidt. This

is the *philosophical* heart of his dual conception of nature. On the one hand he sees a unity of Subject and Object, while on the other insists on an "indestructible boundary" between them (p. 159). The unity of Subject and Object he maintains against Kant, their absolute non-identity against Hegel. These two conceptions never congeal into one but remain two. It is no accident, therefore, that Schmidt views "Marxist materialism" as embodying a "dialectic *duality*" (p. 136) rather than a dialectical unity; this philosophically preconceived notion of the dialectic lies behind his dual conception of nature. Nature is less a differentiated unity than a differentiation on the one hand and a unity on the other.[39] In his attempt to define Marx's concept of nature in opposition to both Kant and Hegel, Schmidt shuttles from Hegel to Kant and back again without ever breaking free. He remains firmly within their problematic. Hence the two conceptions of nature, the one more Kantian, the other more Hegelian: "Sundered into two parts, man and material to be worked on, nature is always present to itself in this division" (p. 79). Schmidt has done exactly as he intended: he has placed Marx wholly between Kant and Hegel, not beyond them. The result is a lot of Kant, almost as much Hegel, but very little in the way of Marx.[40]

In a stimulating and insightful treatment of the origin and social function of philosophical abstraction, Alfred Sohn-Rethel notes that while conceptual dualism is as old as philosophy itself, still such dualisms have a particular significance under capitalism; they are the hallmark of a bourgeois philosophy with immediate roots in Kant. "For the unyielding dualism of this philosophy is surely a more faithful reflection of the realities of capitalism than can be found in the efforts of the illustrious post-Kantians striving to rid themselves of it. . . . How can the truth of the bourgeois world present itself other than as dualism?"[41] Although it was aimed neither at the concept of nature specifically nor at Schmidt (in fact Sohn-Rethel finds Schmidt's an "outstanding study") this assessment fits both Schmidt and the bourgeois treatment of nature.

As for Schmidt's misinterpretation of Marx, here too he seizes on something real, but in pursuit of his deeper project he distorts truth into

half-truth into falsehood. He begins by emphasizing that an examination of nature must focus on the realm of use-values, which he distinguishes sharply from exchange-values. Much as Marx abstracts from use-value in the first chapter of *Capital*, Schmidt abstracts from exchange-value: "The exchange-value of a commodity has no natural content whatsoever," he contends (p. 65). This absolute distinction seems reasonable, even insightful, at first, but less so as its consequences reveal themselves. The labor process, for example, Schmidt depicts as historically unchanging, but it is so only in its most abstract, material (use-value) aspects. The moment we examine the relation between use-value and exchange-value, historically separate modes of production are readily identifiable—indeed, can *only* be identified by considering exchange-value relations. Yet Schmidt feels quite able to discuss the domination of nature as a historical necessity, quite able to declare that under socialism too "nature is to be mastered" (p. 155), and to accuse Marx of not recognizing these things and therefore being a utopian—all this Schmidt could do without leaving the abstract realm of pure use-value. Now Marx was the victim of no such philosophical abstraction. Throughout *Capital* he refers back to use-values whenever this is necessary for refueling his economic argument. Schmidt does not know this because there is no quote in all of *Capital* that will tell him so, that will tell him how a specific conception of use-values is being developed implicitly, as an integral component of the economic arguments in *Capital*. In *Grundrisse*, however, Marx is explicit:

> The *particular nature of use value*, in which the value exists, or which now appears as capital's body, here appears as itself a *determinant* of the *form* and of the action of capital; . . . nothing is therefore more erroneous than to assert that the distinction between use value and exchange value, which falls outside the characteristic economic form in simple circulation . . . falls outside it in general.[42]

Had Schmidt understood the importance of exchange-value in determining the historical relation with nature, his view of the labor process,

which he correctly puts at the centre of his understanding of nature in Marx, would have been dramatically different. Then and only then could his "concept of nature" begin to reflect the spirit of Marx's own work. By separating use-value from exchange-value and focusing exclusively on the former, and by placing himself on pre-marxist philosophical terrain (Kant and Hegel), Schmidt sets the stage for reproducing a quintessentially bourgeois conception of nature out of his reading of Marx. The combined reification and mystification that result from equating nature with use-value are hallmarks of the bourgeois concept.

The political implications of Schmidt's concept of nature are, like the work from which they emerge, nothing if not diverse and comprehensive. We have already seen that revolutionary feminism is unlikely to be one of Schmidt's favorite movements. The same goes for revolutionary socialism, since in abstracting totally from class differences,[43] he gives the practical impression that these are unimportant. Little wonder, therefore, that he sees socialism as pretty much like capitalism except worse: the domination of nature is still necessary under socialism; ideology and the division of labor will remain; and socialism like capitalism will have "two areas of life"—"labour and non-labour."[44] In fact, Schmidt is quite unconcerned with politics, for how else could he have explained the practical intent behind human activity as (in Nietzsche's phrase) a "will to power"? Even Bertrand Russell had no qualms in describing the latter as a philosophy "represented politically by Nazis and Fascists."[45] Whether intended or not Schmidt's philosophy has wide-ranging political implications. In the attempt to build a humane society, none are more debilitating than his politics of despair. And here we see the true source of wishful thinking, utopianism, and nature-speculation:

> We should . . . ask, whether the future society will not be a mammoth machine . . . "a massive racket in nature." . . . There remains at best the vague hope, that men, having been reconciled with each other in the sense of Schopenhauer's philosophy, will learn to a far greater degree to practice solidarity with the oppressed animal world. (p. 156)

IV. The Domination of Nature?

The "domination of nature" has been a consistent theme for the Frankfurt School. By developing their technological capabilities, the argument goes, human beings have relentlessly extended their domination over nature. But nature reaps its revenge since the domination of "external nature" is accompanied by the increasing domination of "internal nature" (people themselves) and the growing fragility of human existence. This argument appeared in the earliest writings of Horkheimer, Adorno, and others but became of more central concern after Hiroshima. Marcuse became its most persistent and probably its most sophisticated exponent. But it rests, as we have seen, on a dualistic and contradictory conception of nature which amounts ultimately to a rather subtle fetishism. The Frankfurt School thesis treats certain social relations with nature as natural relations, in the sense that they are deemed eternal and inevitable. The treatment of technology provides the best illustration of this unintentional fetishism. While recognizing it as a social product, even Marcuse tended to dwell on the abstract philosophical necessity of technology for mediating human-natural relations. Domination of nature thereby appeared to spring from this abstract necessity and not from the specific social and historical relations within which technology was produced and used. Of course, Marcuse retained the hope of a new technology, of a benign mastery of nature devoted to liberation not repression, but it was little more than a hope. It was all too easy for Habermas (the most prominent along with Schmidt of the Frankfurt School's second generation) to reject this meager hope and to state categorically: "technology, if based at all on a project, can only be traced back to a 'project' of the human species *as a whole*, and not to one that could be historically surpassed."[46] In the strictest possible sense, in content and in form, technology is seen to be natural.

Like the fetishism of commodities identified by Marx, the Frankfurt School fetishism of nature results from a strict separation of use-value from exchange-value. This is particularly clear in Schmidt but he is by

no means untypical. The Frankfurt School tradition evolved as a reaction to vulgar economism; from the beginning, the supposed "primacy of economies" was challenged, and members of the School immersed themselves in cultural, psychological, social, and broader political studies. But this retreat from exchange-value, and the consequent fetishism of nature, led ultimately to a rather deterministic analysis of science and technology. This determinism is most obvious in the second-generation theorists. Thus we find Schmidt volunteering the following gem of philosophical determinism: "In the Marxist dialectic, as in the Hegelian, what is non-identical with the Subject is overcome stage by stage. Greater and greater areas of nature come under human control" (p. 136). Little wonder that Schmidt sees as utopian the belief by Marx that freedom from "domination" is even *possible*. The politics of despair that underlie this determinism were obvious from the beginning. Virtually alone among the early theorists, Marcuse never renounced all hope of revolution though he clearly had serious apprehensions. The later generation inherited from the start a strongly antirevolutionary tradition; to believe in revolution was simply dishonest.

In his definitive theory, Martin Jay observes of the period after 1945 that "the Frankfurt School traveled the last leg of its long march away from orthodox Marxism. The clearest expression of this change was the Institut's replacement of class conflict, that foundation stone of any truly Marxist theory, with a new motor of history. The focus was now on the larger conflict between men and nature."[47] In the struggle over nature, therefore, the social relation with nature under capitalism becomes of secondary importance; the political struggle is not aimed at the capitalist use and production of nature, but at the general misuse and domination of nature by the human species. The "human condition" not capitalism, becomes the historic villain and political target. Thus the Frankfurt School brought not only a flawed and dualistic conception of nature to the left wing of the environmental movement of the 1960s. Directly and indirectly they brought a schizophrenic politics in which, hope for humanity, insofar as there was any, lay in making reforms to

the present system (since it was not capitalism as such that was at fault). If there was no hope—if the human condition was truly determinant—then at some point, a more or less desperate, mystical retreat into self seemed the only alternative.

Recently, Raymond Williams has claimed to identify in marxism a "triumphant version of man's conquest of nature." He observes correctly what we have seen in the first part of this chapter that this triumphalism is characteristic of a whole period of bourgeois thought, and that it is a coherent view of nature and society only insofar as the two are taken from the beginning as separate.[48] This is clearly an apt criticism of the Frankfurt School also, even if, for them, the inexorable necessity of human domination over nature is cause for despair not celebration. At best it is a negative triumphalism. This triumphalism is also evident both in the treatment and in the ideology of nature in twentieth-century Russia.[49]

Other so-called western marxists also had trouble with the concept of nature. It is omitted completely from Louis Althusser's epistemological systems because of the difficulties it presents. Prepared at least to deal with the difficulties, Sebastiano Timpanaro attempts to reinstate the biological priority of nature, arguing that the "biological condition" of humankind has been underemphasized by marxists. He seeks to bend the stick back by emphasizing the "oppression which nature exercises on man."[50] But in the end Timpanaro achieves little more than a biological version of the ideology of external and universal nature—one which leaves open some ambiguous similarities with certain aspects of sociobiology. This too is a negative triumphalism.

Nonetheless, it is not true as Williams would have us believe that this triumphalism can be traced to the core of marxism. The essence of the critique presented in this chapter is that we must now consider there to be a social priority of nature; nature is nothing if it is not social. Merely to assert this conclusion, as Schmidt did in places, does not take us beyond the dualistic treatment of nature. What must be done is to show the concrete relationship by which nature is invested with this social priority.

There are in Marx the beginnings, if only the beginnings, of this view of nature, a view of nature much more sophisticated and dialectically complex than Williams's triumphalism. Like triumphalism, the negative triumphalism of the "domination of nature" idea begins with nature and society as two separate realms and attempts to unite them. In Marx we see the opposite procedure. He begins with the relation with nature as a unity and derives as a simultaneously historical and logical result whatever separation between them exists. In this way the social priority of nature is not something that must be infused from the outside, but something that already exists in the social relation with nature. Instead of the domination of nature, therefore, we must consider the much more complex process of the *production of nature*. Where the "domination of nature" argument implies a dismal, one-dimensional, contradiction-free future, the idea of the production of nature implies a historical future that is still to be determined by political events and forces, not technical necessity. But the political events and forces are precisely those that determine the character and structure of the capitalist mode of production. We get a glimpse, but only a glimpse, of this view of nature in Marx's work. The next chapter is devoted to developing this view of the production of nature in order to provide an alternative to the dualistic ideology of nature, and thus to offer a new theoretical basis upon which to ground an examination of the specific if very contradictory treatment of nature at the hands of capitalist development.

CHAPTER TWO

The Production of Nature

"SCIENTIFIC TRUTH," Marx wrote in a famous statement, "is always paradox, if judged by everyday experience, which catches only the delusive appearance of things."[1] The idea of the production of nature is indeed paradoxical, to the point of sounding absurd, if judged by the superficial appearance of nature even in capitalist society. Nature is generally seen as precisely that which cannot be produced; it is the antithesis of human productive activity. In its most immediate appearance, the natural landscape presents itself to us as the material substratum of daily life, the realm of use-values rather than exchange-values. As such it is highly differentiated along any number of axes. But with the progress of capital accumulation and the expansion of economic development, this material substratum is more and more the product of social produc-

tion, and the dominant axes of differentiation are increasingly societal in origin. In short, when this immediate appearance of nature is placed in historical context, the development of the material landscape presents itself as a process of the production of nature. The differentiated results of this production of nature are the material symptoms of uneven development. At the most abstract level, therefore, it is in the production of nature that use-value and exchange-value, and space and society, are fused together. The function of this chapter, then, is to renovate our conception of nature in such a way that the dualistic world of bourgeois ideology can be reconstituted as an integrated whole. This will allow us to treat the real patterns of uneven development as the product of the unity of capital, rather than blindly to situate the process in the false ideological dualism of society and nature. The problem will be to separate the essential moments of the production of nature from its various appearances.

Marx nowhere talked explicitly about the production of nature. But in his work there is implied an understanding of nature which leads firmly in this direction. In fact, Marx did not have a single, coherently elaborated concept of nature at all, rather he used "nature" in a variety of ways. These different uses of the concept were not random, however, and a close reading of Marx's work demonstrates a rational progression in his treatment of nature. In the end we are not at all left with a fully constructed concept but do have a sketchy framework of the conception of nature implied by Marx's analysis and critique of the capitalist mode of production.

I do not accept that there is a radical break between the so-called young Marx and the mature Marx;[2] there is, rather, a rich and complex development in his thought, and this is reflected in his treatment of nature. Throughout his work, Marx treats nature as a differentiated unity, but at different periods the emphasis upon unity and differentiation varies. His earlier work, particularly the *Economic and Philosophical Manuscripts* (in Marx, 1975 edn) emphasized the unity of "man and nature." Here he borrowed heavily from the idealist Hegelian tradition as well as

from Kant. Only with *German Ideology* did Marx (writing with Engels) come round to a more materialist vision of nature. Rather than discussing the philosophical aspects of the supposed unity of "man and nature," Marx was more concerned with the actual processes which might achieve this unity. This led him to discuss the function of human labor, putting it at the center of the relationship between human beings and nature. Further, he began to treat the whole question as a historical one not an abstract philosophical puzzle. In *Grundrisse*, many of these insights were extended and others added, particularly concerning the historical dimensions of the human relation with nature. In *Capital*, and especially in volume one which Marx completed for publication, the treatment of nature is still sporadic, but there for the first time we see a consistent logical progression in the different treatments of nature. The discussion of nature occurs only in fragments because *Capital* was not intended to analyze nature, specifically, under capitalism. It was intended as a critique of capitalist production, and as such required Marx to develop at least partially his conception of nature. Pursuing his primary task, however, did not require him to present or even develop a completed conception of nature. But insofar as the analysis in volume one presents a logical progression of concepts and ideas in building Marx's critique, so the conception of nature also receives this treatment.

The first discussion of nature in *Capital* repeats some of the abstract philosophical tone of the earlier work, but achieves something extra; it simultaneously lays the foundation for a more concrete and more developed treatment of the relation with nature under capitalism. Thus in the later discussions of the division of labor, manufacturing, and modern industry, Marx explicitly picks the theme up again in order to show precisely what becomes of nature under the actual conditions of capitalism. Elsewhere in *Capital*, for example in his discussion of rent, there are further vignettes of a more concrete, materialist conception of nature, but these are nowhere pulled together or even explicitly discussed. It is this task which will be attempted here. This involves not a compilation of references to nature and the attempt to force upon them an internal

philosophical coherence, but rather a serious understanding of the direction and intent of Marx's work and an attempt to expand and expound the conception of nature which at least in part exemplifies this intent. As such it is an essay in politics and theory, not in philosophy.

In volume one of *Capital* Marx exemplifies his own dictum that "rising from the abstract to the concrete" is the scientifically correct method. Beginning with the concrete commodity, he derives a number of theoretical abstractions: exchange-value, use-value, value, surplus value, abstract labor, socially necessary labor time. As the analysis proceeds, these concepts are progressively developed until they accurately reproduce the concrete in thought. His treatment of the relation with nature follows this procedure. But integrated into this logical development in the text is a historical development; the logic of Marx's argument mirrors, however generally, the actual historical development that occurred.[3] The development of the conception of nature therefore expresses this "logico-historical" methodology, even if it is nowhere laid out completely or succinctly, as is done for the analysis of money for example, but must be pieced together from fragmented discussions of nature. Thus in the first part of *The German Ideology*, in isolated passages of *Grundrisse*, and more systematically if less obviously in *Capital*, we get occasional glimpses of a logico-historical derivation of the societal relation with nature. The first major task has been to detect these clues; the second is to lay them out and complete the jigsaw puzzle. Marx has given us the four corners and most of the straight edges; he has also given us most of the common pieces necessary to complete the picture, but these pieces are presented in the context of wholly different analyses. What must be done in order to recognize their significance is to turn these pieces over and, as it were, to reveal their nature-face.

The place to begin is with production in general, since this is the most basic material relation between human beings and nature. "*Production in general* is an abstraction, but a rational abstraction in so far as it really brings out and fixes the common element" in all epochs of production. "Some determinations belong to all epochs, others only to a few.

[Some] determinations will be shared by the most modern epoch and the most ancient." Thus "the elements which are not general and common, must be separated out from the determinations valid for production as such, so that in their unity—which arises already from the identity of the subject, humanity, and of the object, nature—their essential difference is not forgotten."[4] With production for exchange, the general determinants of the relation between human societies and nature remain valid, but as we saw in the critique of Schmidt, the dialectic of use-value and exchange-value adds a new dimension to the relation with nature, a dimension which is specific to production for exchange rather than production in general. Finally, there have been many modes of production based on market exchange, but with the victory of capital over the world market, a wholly new set of very specific determinants enter on the scene; the relation with nature is again revolutionized.

From production in general to production for exchange to capitalist production, the logical and historical arms of the argument imply and lead to the same concretely observable conclusion: the production of nature. In perhaps his clearest statement expressing the reality of the production of nature, Marx wrote as part of a critique of Feuerbach's idealism: "So much is this activity, this unceasing sensuous labor and creation, this production, the basis of the whole sensual world as it now exists, that were it interrupted only for a year, Feuerbach would not only find an enormous change in the natural world, but would very soon find that the whole world of men and his own perceptive faculty, nay his own existence, were missing."[5] So completely do human societies now produce nature, that a cessation of productive labor would render enormous changes in nature, including the extinction of human nature.

I. Production in General

In his initial derivation of the abstract moments of the commodity, Marx depicts production as a process by which the form of nature is altered. The producer "can work only as nature does, that is by changing the form of matter. Nay more, in this work of changing the form he is con-

stantly helped by natural forces." By his or her industry, the producer "changes the forms of the materials furnished by nature, in such a way as to make them useful to him. The form of wood, for instance, is altered, by making a table out of it. Yet, for all that, the table continues to be that common, every-day thing, wood." Insofar as labor produces useful things that fulfill human needs, "it is an eternal nature-imposed necessity, without which there can be no material exchanges between man and nature, and therefore no life."[6] But labor effects more than just a simple change in the form of matter; it produces a simultaneous effect on the laborer. "Labour is, in the first place, a process in which both man and nature participate, and in which man of his own accord starts, regulates, and controls the material re-actions between himself and nature. He opposes himself to nature as one of her own forces, setting in motion arms and legs, head and hands, the natural forces of his body, in order to appropriate nature's productions in a form adapted to his own wants. By thus acting on the external world and changing it, he at the same time changes his own nature."[7] The metabolism of human beings with nature is the process whereby human beings appropriate the means to fulfill their needs and return other use-values to nature. At this abstract level, clearly, the relation with nature (the material exchange) is a use-value relation; as pure use-value does nature enter the relation with human beings. This is the amplified and concretely developed version of Marx's earlier, more abstract claim that "*Industry* is the *real* historical relationship of nature . . . to man."[8]

Human beings are born with certain natural needs—food, sex, warmth, social interaction—and they are born into a world where nature provides, either directly or indirectly, the means for fulfilling these needs. Means of subsistence are those material necessities consumed directly from nature in order to fulfill natural needs. Where means of subsistence are not naturally available in the appropriate quality or quantity, means of production—the objects of production to be worked on and the instruments with which the work is accomplished—are appropriated from nature and employed by living labor in order to produce

consumable products. By producing the means to satisfy their needs, human beings collectively produce their own material life, and in the process produce new human needs whose satisfaction requires further productive activity. These needs and their mode of satisfaction are, at the most general level, the determinants of *human* nature, for in all of this, people are natural beings; they bring to production their natural abilities (physical and mental) which are exercised on and through the objects and instruments of production. There is, therefore, an abstract identity of the human social being with nature: "Man is directly a natural being . . . equipped with natural powers [and] has real, sensuous objects as the object of his being and of his vital expression. . . . A being which does not have its nature outside itself is not a natural being and plays no part in the system of nature."[9]

The production of consciousness is an integral part of this general production of material life. At its most general, consciousness is simply the consciousness of human practice:

> The production of ideas, of conceptions, of consciousness, is at first directly interwoven with the material activity and the material intercourse of men, the language of real life. Conceiving, thinking, the mental intercourse of men, appear at this stage as the direct efflux of their material behaviour. . . . Men are the producers of their conceptions, ideas, etc.—real, active men, as they are conditioned by a definite development of their productive forces and of the intercourse corresponding to these.[10]

Consciousness of needs, of the means to satisfy these needs, and of the forces affecting both the needs themselves and the means to satisfy them (e.g., science, early natural religion, etc.)—these are central to the constitution of human consciousness. In this way, consciousness as such is the *natural* product of productive human activity, and of the social relations into which human beings enter with one another in order to produce.

The picture drawn here suggests a general unity of nature with society. It is a unity of nature with society in which "the restricted relation

of men to nature determines their ["men's"] restricted relation to one another, and their restricted relation to one another determines men's restricted relation to nature."[11] This is not the unity of nature which preoccupies the physicist, nor that which is idolized by the "back to nature" wing of the ecological movement. For the physicist, the unity of nature is a product of severe conceptual abstraction; for the "back to nature" aficionado the unity of nature is a product of wishful thinking. Both are ideal abstractions. The unity of nature implied in Marx's work derives from the concrete activity of natural beings, and is produced in practice through labor. The labor of natural beings pulls in the different facets of nature binding them into a whole. Human beings survive and develop as social beings by working in cooperation with nature. But this unity of nature is not undifferentiated; it is a unity, not an abstract identity, and it is necessary to understand the role played by human productive activity in the differentiation of nature.

In the first place, there is a crucial distinction between human beings and animals, and here too labor plays a central role. As Marx pointed out, human beings "can be distinguished from animals by consciousness, by religion or anything else you like. They themselves begin to distinguish themselves from animals as soon as they begin to *produce* their means of subsistence."[12] It is human productive activity, not as a general concept but as a concrete historical act designed to create means of subsistence, that differentiates human beings from animals. Engels makes the same point more explicitly in his unfinished essay entitled "The Part Played by Labour in the Transition from Ape to Man." Labor, he says, is "the prime basic condition for all human existence, and this to such an extent that, in a sense, we have to say that labor created man himself." From the start, human nature was a human product, and this applies not simply to consciousness, but even to human physiology. The development of the hand, from a means of locomotion into a sophisticated limb for the manipulation of tools, is accomplished gradually by thousands of years of labor. Or as Donna Haraway has written: "Humankind is self-made in the most literal sense. Our bodies are the

product of the tool-using adaptation which pre-dates the genus *Homo*. We actively determined our design through tools that mediate the human exchange with nature."[13]

In addition to human physiology, human consciousness and the material means of subsistence, the production and reproduction of material life entails the production of workers, that is, the reproduction of labor power. Some form of social relations are implied in this reproduction process, and the most basic is the division of labor between the sexes. This is the first truly social division of labor, but its origins lie in pre-human social organization. As it is inherited by human society it is therefore simultaneously natural and social, illustrating again the unity of nature. A biological differentiation in nature is reproduced as a social division of labor. This division of social labor is basic to the process of reproduction, but spills over to the sphere of production also. The sexual division of labor thus becomes general throughout society, and in this way, again through purposeful human activity, human nature itself begins to be differentiated. The division of labor produces a systematic division of social experiences upon which human nature is constantly shaped and reshaped.

Now this view of production in general offers some insights concerning nature, but is fairly limited. A number of assumptions are implied, particularly that of harmonious ecological and social balance, at the center of which lies an exact, ongoing match between the production and consumption of use-values. But year-to-year, there is the continual possibility that production and consumption do not match and that either famine or social surplus will occur. At first this mismatch is entirely accidental and due to natural causes such as inclement weather or particularly fertile soils, but precisely to forestall the disastrous effects attendant upon a shortfall of production vis-à-vis consumption, every society grows "to provide a fund of social insurance against elementary disasters which may threaten the annual produce." Where surplus was at first simply a natural possibility, it becomes a social necessity. The creation of this permanent social surplus allows not only the most basic

survival of the society but also the further division of labor and even population growth;[14] the surplus becomes necessary as a means to combat social crisis at its most basic level.

The realization of a permanent social surplus, however, is not an automatic result of the possibility of surplus, but requires specific types of social and economic organization which are consistent with the individual's production of more than simply the immediate means of subsistence. But this increased production, and the increased division of labor that accompanies it, in turn present new possibilities. In short, the permanent surplus becomes the basis of the division of society into classes. Again this appears first as a possibility whereby one part of society ceases to perform productive labor, in part or in whole, and obtains leisure at the expense of the remaining working population. "Something which is at first voluntary and intermittent later becomes obligatory and regular." And according to Engels, this transformation to a society characterized by the appropriation of surplus is necessarily accompanied by the development of the state and slavery, and the solidification of this division between producers and consumers of surplus into a division of social classes: "the first great social division of labor was bound, in the general historical conditions prevailing, to bring slavery in its train. From the first great social division of labour arose the first great cleavage of society into two classes: masters and slaves, exploiters and exploited." But this development too depends upon a "social revolution to break up egalitarian primitive society and give birth to a society divided into classes."[15] Social development splits the harmonious balance of nature. In one form or another, this surplus is appropriated from nature and in order to expedite its regular production and distribution specific social institutions and forms of organization are required. This in turn alters the social relation with nature. No longer does the abstract natural individual ("man") fit simply into an equally natural environment, since the relation with nature is mediated through the social institutions.

The production of a permanent social surplus therefore has a seemingly contradictory effect. It provides the means by which human beings

can develop more control over their relation with nature, since they can regulate more effectively the necessary supply of use-values for satisfying natural needs. In short, the production of a permanent social surplus allows human society to begin the long process of emancipating itself from the constraints of nature. On the other hand, however, this increased control is necessarily social control, and although it assists the emancipation of human society as a whole from nature, it does so only by developing the internal differentiations within society, and by enslaving a large part of the population. The precise form taken by this contradictory relation depends on the specific kind of society that develops, and it is to this more concrete examination that we must now turn. As Marx noted:

> To the extent that the labour-process is solely a process between man and nature, its simple elements remain common to all social forms of development. But each specific historical form of this process develops its material foundations and social forms. Whenever a certain stage of maturity has been reached, the specific historical form is discarded and makes way for a higher one.[16]

II. Production for Exchange

The surplus may take many forms, depending partly on what natural conditions permit or encourage food reserves, population growth, unproductive occupations, etc. In some forms it is useful, in others not. If in a non-useful material form (e.g., a wheat supply over and above what can be consumed or usefully stored), the surplus product may be exchanged for other use-values. The production of a surplus is a necessary if not sufficient condition for the regular exchange of use-values to occur. With production for exchange, the relation with nature is no longer exclusively a use-value relation; use-values are not produced for direct use but for exchange. As specific use-values are exchanged against each other in specific quantities, they become socially transformed into commodities, existing simultaneously as exchange-values as well as use-

values. The exchange-value of a commodity expresses the quantitative relation in which it can be exchanged for other commodities; with production for exchange, exchange-value not use-value is the immediate reason for production. Indeed, the commodity's direct use-value to its owner is that of being a depository of exchange-value. The production of material life is therefore not just a natural activity in which nature provides the subject, object, and instrument of labor. In an exchange economy, the appropriation of nature is increasingly regulated by social forms and institutions, and in this way, human beings begin to produce more than just the immediate nature of their existence.

All of this presupposes the development and extension of the division of labor; production for exchange can persist only incidentally where such a division of labor does not exist. In the first place, there is a division of labor between those activities that are tied to the land and those that are not—a separation between agriculture and commerce. With the generalization of commodity production, various commercial activities and institutions are necessary to facilitate an exchange of products. The market function, insofar as it is separate from production, develops in order to simplify and centralize the complex exchange transactions that occur. To facilitate further this complex of exchanges, the money commodity is developed. Its use-value is precisely its ability to represent "pure exchange-value."[17] The creation of a market and of these other institutions is synonymous with the development of central places and ultimately towns, and numerous other ancillary activities also begin concentrating in towns, contributing to their development. In this way the division between agriculture and commerce implies the separation of town and country which is, in turn, "the foundation of every division of labor that is well developed, and brought about by the exchange of commodities."[18]

The production of a permanent surplus and the development of the division of labor provide the necessary economic foundation (if the broader social conditions are favorable) for the development of social classes. The fundamental difference here is between the class which per-

forms the sum of social labor and the class or classes which perform no labor but nonetheless appropriate the social surplus. This class differentiation springs from the prior differentiation between productive and unproductive labor but does not necessarily remain synonymous with it. Many ruling classes perform no labor at all, while others may perform necessary social functions which are, nonetheless, unproductive of social value. The point is that with the development of social classes, access to nature is unequally distributed (both qualitatively and quantitatively) according to class. The ruling class, whether or not it directly controls the social means of production, certainly controls the surplus appropriated from nature through the human labor of others, while the laboring class works the means of production. With landed property, the unequal access to nature is readily apparent, and takes on a very visible, spatial dimension with the separation between town and country.

With the division of society into classes the state makes its historic appearance as a means of political control. As Engels put it, at "a definite stage of economic development, which necessarily involved the cleavage of society into classes, the state became a necessity because of this cleavage."[19] The function of the state is to administer the class society in the interests of the ruling class, and this it does through its various military, legal, ideological, and economic arms. The state is also charged with regulating the oppression of women, for the division of labor between the sexes becomes a radically different social relation with the emergence of private property and production for exchange. It is not just class exploitation and private property which emerge together, but with them slavery and the oppression of women.

The division of labor within the family is subordinated to the broader social division of labor now thoroughly rooted in class structure and the production process. What was at first only a "latent form of slavery" in the family develops into a full-blooded slavery where wife and child become the property of the husband/father. The abstract unity previously attributed to relations between the sexes develops into its opposite. In those realms where women had effective control over the production

process, most notably in agriculture, men take over. Where responsibility for social reproduction had been shared, women were increasingly forced to carry the full burden with the evolution of modes of production based on commodity exchange. Not that they ceased laboring. Just that while women were forced to accept responsibility for all of the household tasks associated with child-rearing, as well as some commodity production, the male was specializing more and more exclusively in the production of commodities for exchange. The rationale for this development was closely linked with the origins of private property. The inheritance of private property could only be assured through patrilineal family relations, and it was the enforcement of this that wrote the final chapter of what Engels referred to as the world-historical defeat of the female sex: "The overthrow of mother right was the *world-historical defeat of the female sex*. The man took command in the home also; the woman was degraded and reduced to servitude; she became the slave of his lust and a mere instrument for the production of children."[20] He goes on to demonstrate the way in which the privatized family developed in response to the developing social, political, and economic relations between men and women. He traces the movement from group marriage to pairing marriages to monogamy as the predominant forms of family, concluding that monogamy, which ever only applied to women in any case, is a finely tuned historical mechanism for the oppression of women.

Through the production of these social divisions on the basis first of sex and class, human societies provoke a further transformation in human nature. For as Marx said in the sixth thesis on Feuerbach, "the human essence is no abstraction inherent in each single individual. In its reality it is the ensemble of the social relations."[21] And as the ensemble of social relations changes, so too does human nature.

One of the divisions of labor which develops alongside production specifically for exchange is the division between manual and mental labor. This opens up profound new vistas for the human production of consciousness, since hereafter, certain aspects of nature are available

to some classes only as a conceptual abstraction, not as a physical partner or opponent in the work process. Just as the process of exchange abstracts in practice from the use-value of the commodities being exchanged, so the human consciousness can abstract itself from the immediate material conditions of existence. This potential for abstract thought arises as a result of the abstraction in practice that accompanies the exchange process, a "direct efflux" of consciousness from material behavior which leads to its own negation. That is, as soon as abstract thought and conceptualization develop, and are socially institutionalized with the division of mental from manual labor, it is no longer sufficient to view consciousness simply as a "direct efflux" of material behavior. Now, for the first time, consciousness can "really flatter itself that it is something other than consciousness of existing practice."[22] Of course, mental labor may remain tied to the task of finding new objects of labor, developing new instruments of labor, and reorganizing the work habits of the subjects of labor. But some forms of mental "labor" may cease to be labor at all, productive or unproductive, since at this stage nature appears accessible to some individuals, indeed to entire classes, without the performance of labor but through "pure contemplation."

With production for exchange rather than direct use, there arises first the possibility and then the necessity for alienation of the individual. The production of surplus and the consequent increase in social wealth does not guarantee a more wealthy laboring class, given the emergence of class distinctions, and so there is a purely quantitative alienation of work. The surplus labor of the laboring class is appropriated by the ruling class. But qualitatively too, the relation of the laboring class with nature is altered, for though they relate to nature directly through the use of their labor power, they are alienated from their own product. The product's owner, on the other hand, is alienated from any direct, practical relation with nature because he is deprived of his own labor. Now the worker's alienation is not simply alienation from the product but, due to the increased specialization of labor, it is also alienation from one's fellow workers and oneself. Yet predictably, this alienation calls up its

opposite; increased competition and specialization in the work process (or even in control over the work process) conjures up the necessity of developing the natural powers of cooperation. While the detrimental effects of alienation fall uncompensated on the laboring class, the benefits of cooperation rarely accrue to them. They relinquish the quantitative gains of increased cooperation, in the form of surplus labor converted into exchange-value, and the material benefits of cooperation pertain mostly at the level of the productive forces rather than the level of the laboring individual. With the development of production for exchange, in short, the human individual becomes a societal product:

> this positing of prices and their circulation etc. appears as the surface process, beneath which, however, in the depths, entirely different processes go on, in which this apparent individual equality and liberty disappear. It is forgotten, on one side, that the *presupposition* of exchange value, as the objective basis of the whole of the system of production, already in itself implies compulsion over the individual, since his immediate product is not a product for him, but only *becomes* such in the social process, and since it *must* take on this general but nevertheless external form; and that the individual has an existence only as a producer of exchange value, hence that the whole negation of his natural existence is already implied; that he is therefore entirely determined by society; that this further presupposes a division of labour etc., in which the individual is already posited in relations other than that of mere *exchanger*, etc. That therefore this presupposition by no means arises either out of the individual's will or out of the immediate nature of the individual, but that it is, rather, *historical*, and posits the individual as already *determined* by society.[23]

The alienation of the laborer implies, along with a strictly material alienation, a certain alienation of consciousness. These develop together. While abstract thought originates as the privilege of the few, it quickly becomes the property of everyone. This emancipation of consciousness from immediate human practice is the event from which the possibility of ideological consciousness arises. Immediate self-consciousness can

be substituted by social ideology. "The ruling ideas of each age have ever been the ideas of its ruling class," wrote Marx and Engels in the *Communist Manifesto*.[24] For the laboring class, in whatever mode of production, there is a constant battle at the level of the individual as well as the class, between the spontaneous consciousness of the daily work experience and the ruling ideas disseminated by the ruling class which, however successful and however much they appear to be rooted in immediate experience, are always imbued as abstract ideology. The feudal peasant understood that three days a week she and he worked gratis for the Lord of the Manor, but they may also have understood this reality as the result of their just and proper place in God's world.

With production for exchange, the production of nature takes place on an extended scale. Human beings not only produce the immediate nature of their existence, but produce the entire societal nature of their existence. They develop a complex differentiation in the relation with nature, a societal nature differentiated according to sex and class, mental and manual activity, production and distribution activities, and so on. Within production, there is a further complex division of labor. But the unity that previously characterized the relation with nature does not simply degenerate into random chaos. The unity is reproduced in a more advanced form. For with the generalization of commodity production and exchange relations, previously isolated, localized groups of people are knitted together in a concrete social whole. They are united as a societal whole no longer through the general unity of social individuals, but through the societal institutions that have necessarily developed to market and the state, money and class, private property and the family. Society as such, clearly distinguishable from nature, emerges. Through human agency, a cleavage is created between nature and society, between a first nature and a second nature. The latter comprises exactly those societal institutions which facilitate and regulate the exchange of commodities, both directly and indirectly. Isolated local unity gives way to a more extensive societal unity. Second nature is produced out of first nature.

What precisely is meant by "second nature"? Not until exchange economies began to develop state institutions did the idea of second nature begin to emerge. Among the ancient Greeks, Plato was particularly aware of the way in which human activity had transformed the earth's surface. Not until Cicero, however, does it seem that the concept of second nature was actually coined, and with him the second nature was clearly the nature produced by human activity, in opposition to the inherited non-human nature. Writing in a tone that even two thousand years later retains an almost modern ring, Cicero, in *De Natura Deorum*, has Balbus the Stoic make the following observation:

> So we see how the evidence of our senses leads to the inventions of the mind which are then realized by the hand of the craftsman, so as to satisfy all our needs and keep us safely housed and clothed, to give us cities, walls, homes and temples. By our human skills of hand we find ourselves food in plenty and variety. The land offers many fruits to the searching hand, which can be either eaten on the spot or preserved to be eaten later. We feed also on the creatures of the land and sea and air, which we catch or rear for the purpose. We can break in and ride four-footed animals and make their speed and strength our own. On some we place yokes and others we use as beasts of burden. For our own purposes we exploit the keen senses of the elephant and the sagacity of the dog. From the depths of the earth we extract iron, so necessary for the tilling of the soil. We search out deeply buried veins of copper, silver and gold, for both use and ornament. We cut up trees and make use of all sorts of wild and cultivated plants, to make fires to warm our bodies and to cook our food, and also for building, so that we may have a roof over our heads to keep out the heat and cold. We use these materials also to build ships, which sail in all directions to bring us all the needs of life. We alone can tame and control the most violent forces of nature, the sea and the winds, through our knowledge of navigation, and so we enjoy the benefit of all the riches of the sea. We have also taken possession of all the fruits of the earth. Ours to enjoy are the mountains and the plains. Ours are the rivers and lakes.

> We sow corn and plant trees. We fertilize the soil by irrigation. We dam the rivers, to guide them where we will. One may say that we seek with our human hands to create a second nature in the natural world.[25]

This conception of second nature carries down virtually intact to the eighteenth century. Thus Count Buffon, the famous French scientist whose chief concerns included the transformations of nature wrought by human beings, wrote that a "new nature can come forth from our hands." This process he called "the seconding of nature."[26] By the eighteenth century, however, it had become clear that it was not just the material creations of human labor but also the institutions, the legal, economic, and political rules according to which society operated, that comprised the second nature.

In the relation with nature, therefore, "exchange value . . . plays . . . an accompanying role to use value."[27] It does so in two senses: first, the use of natural material is regulated by the quantity of exchange-value its employment will bring, and this applies as much in the labor market as the raw material market. But also, since the material aspects of the second nature were produced as commodities, nature has been produced with an exchange-value component. (In this case it is not abstract external nature which exercises an oppressive control over human beings but the weight of dead labor.) The use-value of nature remains important, of course; only with difficulty (and great expense) can a butcher do the job of a cobbler using the tools and materials of a carpenter. But it is no longer the abstract possibility or impossibility of production that dictates the use of nature. It is the relative cheapness or expense of using various use-values that counts. Use-value is transformed into exchange-value (in calculation as well as practice) in the production process. Hence, just as "use value falls within the realm of political economy as soon as it becomes modified by the modern relations of production, or as it, in turn, intervenes to modify them,"[28] the same is true of exchange-value and nature. Exchange-value falls within the realm of nature as soon as a

second nature, through the production of commodities, is produced out of the first. The relation with nature is mediated by exchange-value as well as use-value determinations.

Without admitting exchange-value into nature, the relation between first and second nature cannot be concretely understood. It would be difficult to move beyond the limited, ambiguous, and potentially ideological claim that on the one hand nature is social while on the other society is natural. Equally limited and problematic is the claim that they are "interrelated" and "interact" with each other, for interaction is no substitute for the dialectic, the key to which is in the production process. Elements of the first nature, previously unaltered by human activity, are subjected to the labor process and re-emerge to be social matter of the second nature. There, though their form has been altered by human activity, they do not cease to be natural in the sense that they are somehow now immune from non-human forces and processes—gravity, physical pressure, chemical transformation, biological interaction. But they also become subject to a new set of forces and processes that are social in origin. Thus the relation with nature develops along with the development of the social relations, and insofar as the latter are contradictory, so too is the relation with nature.

So long as surplus labor is manifested mainly in agricultural commodities, economic and political power is closely tied to land ownership. Agricultural labor produces for direct or nearly direct consumption; few intermediary processes intervene. But with the continued division of labor, an increasing number of processes come to intervene. A group of laborers and a group of merchants, neither of whom are immediately tied to the land, begin to distinguish themselves. The production of a second nature has hastened the emancipation of society from first nature, and in the process has sharpened the contradiction, wholly internal to second nature, between a ruling class that is directly tied to the primitive second nature of agricultural land, and on the other side, a rising bourgeoisie whose political base is dependent on control of the market and the town. As this contradiction develops, it becomes necessary for the bourgeoisie

to extend its control to cover not just the exchange process but also the production process. This in order to ensure the continual supply of commodities for exchange. Through this combined control of production and distribution, they are better able to guarantee the continued production of social wealth; production for exchange, in general, gives way to capitalist production specifically. But unlike the initial development of production for exchange, this is not a gradual, inexorable, "natural" transformation. A product of second nature, it involves a political struggle, culminating in bourgeois revolution. That is, it involves the defeat of one ruling class and the ascent of another, and with this there comes a new, more specific relation with nature.

III. Capitalist Production

The contemporary relation with nature derives its specific character from the social relations of capitalism. Capitalism differs from other exchange economies in this: it produces on the one side a class who possess the means of production for the whole society yet who do no labor, and on the other side a class who possess only their own labor power which they must sell to survive. "Nature does not produce on the one side owners of money or commodities," Marx notes, "and on the other men possessing nothing but their own labor-power. This relation has no natural basis, neither is its social basis one that is common to all historical periods. It is clearly the result of a past historical development, the product of many economic revolutions, of the extinction of a whole series of older forms of social production."[29]

The laboring class under capitalism is deprived not only of the commodities it produces, but of the very objects and instruments necessary for production. Only with the generalization of this wage-labor relation does exchange-value become a consistent expression of what underlies it—*value*. The value of a commodity, expressed in exchange as exchange-value, is a measure of the socially necessary labor time required for the commodity's production. The commodity of labor power is no exception; the laborer's wage is a measure of the labor time socially

necessary for the reproduction of the laborer. Under capitalism, therefore, the surplus product appears in the form of *surplus value*. The value of a laborer's labor power represents only a certain fraction of the value produced during a day's work. With the laborers' historic freedom from the means of production, they are totally dependent upon selling their own labor power. The capitalist on the other hand, freed from the need to labor, is totally dependent on reinvesting some portion of the surplus value in order to create more. Both the realization and reinvestment of surplus value takes place under competitive conditions resulting from private ownership of the means of production, and this forces individual capitals, if they are to reproduce themselves at all, to do so at an extended scale. The specific class structure of capitalism, therefore, makes capital accumulation the necessary condition for the reproduction of material life. For the first time, "accumulation for accumulation's sake" is a socially imposed necessity. The process of accumulation is regulated by the law of value, which operates "only as an inner law, *vis-à-vis* the individual agents, as a blind law of nature."[30]

Derivative of the specific class relations of capitalism, this structure of economic relations is unique to capitalism, and implies a sharply different relation with nature. In that the relation with nature is socially mediated, capitalism is no different from any previous mode of production. But it differs markedly in the substance of this social mediation and in the complexity of the relation with nature. The logic of social mediation is not the simple rationale that springs immediately from the need to produce and consume use-values, nor even the rationale of production for exchange. Rather it is the abstract logic that attaches to the creation and accumulation of social value which determines the relation with nature under capitalism. Thus the movement from the abstract to the concrete is not simply a nice conceptual idea that Marx dreamed up, but is the perpetual translation actually achieved in the relation with nature under capitalism; abstract determinations at the level of value are continually translated into concrete social activity in the relation with nature. This makes for a unique but very complex determination of the relation with

nature—nature as object of production, human nature, the reproduction process, human consciousness. As with production in general and production for exchange, we shall examine the relation with nature under capitalism through these general aspects of the relation with nature. We begin with nature as an object of production.

Under dictate from the accumulation process, capitalism as a mode of production must expand continuously if it is to survive. The reproduction of material life is wholly dependent on the production and reproduction of surplus value. To this end, capital stalks the earth in search of material resources; nature becomes a *universal means of production* in the sense that it not only provides the subjects, objects, and instruments of production, but is also in its totality an appendage to the production process. Thus it "appears paradoxical to assert, that uncaught fish, for instance, are a means of production in the fishing industry. But hitherto no one has discovered the art of catching fish in waters that contain none."[31]

Under capitalism the appropriation of nature and its transformation into means of production occur for the first time at a world scale. The search for raw materials, the reproduction of labor power, the sexual division of labor, and the wage-labor relation, the production of commodities and of bourgeois consciousness, are all generalized under the capitalist mode of production. Under the banner of benevolent colonialism, capitalism sweeps before it all other modes of production, forcibly subordinating them to its own logic. Geographically, under the banner of progress, capitalism attempts the urbanization of the countryside. "The history of classical antiquity is the history of cities, but of cities founded on landed property and on agriculture . . . the Middle Ages (Germanic period) begins with the land as the seat of history, whose further development then moves forward in the contradiction between town and countryside; the modern [age] is the urbanization of the countryside, not ruralization of the city as in antiquity."[32]

Integral to this expansion of capitalism, the capitalist state develops. Like all previous states, its central function is social control on behalf of the ruling class, which means that in capitalist society it becomes

manager of that which private capital is unwilling or unable to do. By repressive, ideological, economic, and an array of other social means, the state attempts to manage the suppression of pre-capitalist societies abroad and the repression of the working class at home, and at the same time attempts to ensure the economic conditions necessary for accumulation. In short it expedites and arbitrates the stable expansion of capitalism.[33] Thus the contradictory character of the relation with nature, along with its complexity, begins to emerge more concretely. Under capitalism, the second nature is increasingly wrenched from the first, but this is achieved as part of a quite opposite but mutual process: the generalization of the capitalist relation with nature, and the practical unification of all nature in the production process.

The social division of labor and the advance of the productive forces develop apace—the second nature experiences continuous internal differentiation. Here scientific labor is of increasing importance and puts itself to the fore as a separate activity. Its main function is to facilitate the production of nature in the form of productive forces: "Nature builds no machines, no locomotives, railways, electric telegraphs, self-acting mules, etc. These are products of human industry; natural material transformed into organs of the human will over nature, or of human participation in nature. They are *organs of the human brain, created by the human hand*; the power of knowledge, objectified." Thus the "fitting technical foundation" for capitalist industry was only established with the construction of "machines by machines."[34] The proliferation of different social divisions and subdivisions of labor necessitates the parallel growth of social cooperation between them if the mode of production is to function as a whole. For the purpose of ensuring social cooperation, entire specializations have emerged, most notably the myriad so-called service activities from banking to mass transit. The abstract cooperation with nature that characterizes human productive activity takes a quite concrete character under capitalism. It develops as an antidote to the "anarchy in the social division of labour," an anarchy which is the logical outcome of competition based on private ownership of the means of production.

Along with the social division of labor there develops a technical division of labor within the work place, and it is here that we begin to see some of the basic elements of the production of human nature under capitalism. The production of a single commodity is broken down into numerous detail operations so that the individual worker's activity is increasingly restricted to only a few motor functions. This too necessitates extensive use of workers' "natural powers of co-operation," but under the control of capital this exercise of cooperation achieves not the development of the individual's natural powers but rather the exact opposite. Like the other natural constituents of the labor process, the laborer's powers of cooperation are alienated; they confront him as the powers of capital. This is precisely the case with fixed capital which represents not only a huge investment of scientific and manual abilities, but also represents an enormous exercise of cooperation among workers. Confronted with the capitalist's machinery, "the labourer is brought face to face with the intellectual potencies of the material process of production" and the intellectual impotencies of his or her individual nature. Manual, intellectual, and cooperative prowess confronts the laborer "as the property of another and as a ruling power. . . . In order to make the collective labourer, and through him capital, rich in social productive power, each labourer must be made poor in individual productive powers." As in the simple production of use-values for direct consumption, the individual realizes his or her nature in the labor process. But the conditions of contemporary labor are such that it converts the laborer not into the romantic, dignified self-made man of Hollywood fame, but, "by forcing his detail dexterity at the expense of a world of productive capabilities and instincts," it converts him or her into a "crippled monstrosity." As far as the worker is concerned, the mode of production based on the development of capital makes a "speciality of the absence of all development":

> all means for the development of production transform themselves into means of domination over, and exploitation of, the producers; they mutilate

> the labourer into a fragment of a man, degrade him to the level of an appendage of a machine, destroy every remnant of charm in his work and turn it into a hated toil; they estrange from him the intellectual potentialities of the labour-process in the same proportion as science is incorporated in it as an independent power; they distort the conditions under which he works, subject him during the labour-process to a despotism the more hateful for its meanness; they transform his life-time into working-time, and drag his wife and child beneath the wheels of the Juggernaut of capital.[35]

This is the fate of human nature under capitalism.

Engels showed that with the development of commodity economies, "the single family" becomes the "economic unit of society."[36] With the victory of a specifically capitalist form of private property, the family form is further revolutionized. In particular, while the family remains an economic unit, its economic function is very specialized and it is no longer *the* economic unit of society. Surplus value is produced not in the family but in the factory and in other work places. Engels stressed that the single family will only cease to be a fundamental economic unit of society with the "transfer of the means of production into common ownership," but capitalism itself begins the process of breaking down the single family by pulling women into the labor force in larger and larger numbers, and by transferring surplus value production from the family to the factory and the public workplace.[37]

As wage labor is consigned to the realm of public activity outside the home, a number of functions connected with the reproduction of labor power are privatized in the nuclear family. The latter is made the domain of "women's work," although most working-class women also work outside the home. The private-family mode of reproduction has a number of advantages for capitalism: the costs of reproduction are borne by the private family and the woman in particular, since she is not paid for her work of reproducing labor power; the private family socializes the next generation of workers to accept "natural" authority; and it requires privatized consumption, with all its ideological and eco-

nomic consequences. But the class structure of capitalism pervades every aspect of the social structure, and reproduction is no exception. The bourgeois family is different in many ways from the working-class family. Thus the bourgeois family probably purchases labor power ("maid," "nanny") to perform their housework, while the working-class wife not only does her own family's housework but may also sell her labor power, like her husband, for a wage. Hence the "double burden" of working-class women. In all of this, although the family is privatized, reproduction is only partly so. The state is heavily involved in the organization of reproduction. It not only controls such crucial processes as education, but through the legal system, controls the form of the family itself; it manages the oppression of women through marriage and divorce laws, abortion legislation, inheritance laws, and so on.[38]

The production of labor power, like any other commodity, is susceptible to the periodic fluctuations of the accumulation cycle. And as with the production of other commodities, attempts have been made to regulate the fluctuations through a wide array of technological innovations—contraceptives, medical technologies, genetic engineering. In this sphere too, the production of nature is an accomplished fact. The commodity produced is, in its very form, a social product. Commonly seen as the first step in the production of nature, test-tube babies are more correctly seen as the last stage. What began on the one side with the indeliberate production of the hand and on the other with the most primitive means for regulating pregnancy, has come together into a single process—the production of life itself.

With the generalization of the wage-labor relation, consciousness develops apace. Religious ideologies which emphasized one's rightful place in God's universe remained but were of limited use in justifying the wage-labor relation. Thus the rise of bourgeois society is complemented by the rise of bourgeois consciousness based on relations of exchange rather than production. If production relations under capitalism are characterized by the exploitation of labor for the sake of extracting surplus value, the exchange relations under capitalism are based on the

principles of equality and freedom. Freedom to exchange one's property and the exchange of equivalents are the principles that characterize exchange, and it is from them that bourgeois ideology is derived. Thus Marx notes sarcastically, referring to the sphere of exchange, "there alone rule Freedom, Equality, Property and Bentham."[39] The wage slavery, the inequalities, and the class basis of property ownership that define the production process are dissolved in the market where buyer and seller confront each other as equals. Everyone is a consumer. With mass consumption, advertising, television, spectator sports, and so on, bourgeois ideology marks the most successful separation of consciousness from the immediate production process. Where it is most successful, as in the United States, it leads to the conclusion that class differences no longer exist; virtually everyone has become middle class.

This homogenization of consciousness receives a boost from the development of the production system itself. In order to accumulate, capital must continuously develop the technical means of production and this implies the continuous advance of science. If science rises with the immediate task of developing the productive forces, it soon takes on an important ideological function, to the point where it operates almost as a secular religion. But this homogenization of consciousness is only ever tendential. It can occur only to the extent that consciousness is separated from the immediate work process, and while this is facilitated by the increased division of labor and by the abstractness of scientific thought, the capitalist mode of production remains based on the fundamental distinction between a working class and a class that owns capital. This leads in the opposite direction, toward a differentiation of cultures along class lines, and of course a further differentiation on the basis of gender and race. Consciousness is still a direct efflux of material practice, if one admits the function of ideology, but just as the society is differentiated, so too is the consciousness. The more focused the class struggle in practice, the more focused is the differentiation of consciousness. "The mode of production of material life conditions the general process of social, political and intellectual life. It is not the consciousness of men that

determines their existence, but their social existence that determines their consciousness."[40]

In its ability to produce nature, capitalism is not unique. Production in general is the production of nature:

> Animals and plants, which we are accustomed to consider as products of nature, are in their present form, not only products of, say last year's labour, but the result of a gradual transformation, continued through many generations, under man's superintendence, and by means of his labour. . . . In the great majority of cases, instruments of labour show even to the most superficial observer, traces of the labour of past ages.[41]

Where capitalism is unique is that for the first time human beings produce nature at a world scale. Hence Marx's brilliant observation, over 120 years ago, that "the nature that preceded human history . . . today no longer exists anywhere (except perhaps on a few Australian coral-islands of recent origin)."[42] This insight is today, of course, conventional geographic wisdom, although it is not generally interpreted in terms of the production of nature.

The development of capitalism, however, involves not just a quantitative but a qualitative development in the relation with nature. It is not merely a linear expansion of human control over nature, an enlargement of the domain of second nature at the expense of the first. With the production of nature at a world scale, nature is progressively produced from within and as part of the so-called second nature. The first nature is deprived of its firstness, its originality. The source of this qualitative change in the relation with nature lies in the altered relation between use-value and exchange-value. At "different stages of the development of economic relations, exchange value and use value were determined in different relations."[43] Under capitalism, then, the role of exchange-value is no longer merely one of accompanying use-value. With the development of capitalism at a world scale and the generalization of the wage-labor relation, the relation with nature is before anything else an exchange-value relation. The use-value of nature remains fundamental, of course,

but with the advanced development of productive forces, specific needs can be fulfilled by an increasing range of use-values and specific commodities can be produced from a growing array of raw materials. The transformation to an exchange-value relation is something achieved in practice by capitalism. Capitalist production (and the appropriation of nature) is accomplished not for the fulfillment of needs in general, but for the fulfillment of one particular need: profit. In search of profit, capital stalks the whole earth. It attaches a price tag to everything it sees and from then on it is this price tag which determines the fate of nature.

Once the relation with nature is determined by the logic of exchange-value, and first nature is produced from within and as a part of second nature, first and second nature are themselves redefined. With production for exchange, the difference between first and second nature is simply the difference between the non-human and the humanly created worlds. This distinction ceases to have real meaning once the first nature too is produced. Rather, the distinction is now between a first nature that is concrete and material, the nature of use-values in general, and a second nature which is abstract, and derivative of the abstraction from use-value that is inherent in exchange-value. The earlier conceptual opposition of human and non-human worlds remains strongly embedded today and indeed was unchallenged until into the nineteenth century. The new notion of second nature was furthest developed not in Count Buffon's France, where the old opposition remained in sway, but rather in Hegel's Germany, with its exceptional philosophical tradition. Hegel's was the idealist second nature. It was not simply the material world transformed and created by human action, but rather the manifestation of free will through a system of right as the economic and political institutions of modern society. It was not the built structures that occupied Hegel's second nature but the legal system, the laws of the market, and the ethical rules of modern society—"the realm of freedom made actual, the world of mind brought forth out of itself like a second nature."[44]

The reality from which Hegel's idealist conception of nature was derived also threw up a material conception of second nature more

advanced than Cicero's and Buffon's, and more appropriate for the reality of emerging capitalism. The best description of this second nature is provided by Alfred Sohn-Rethel:

> In German the world of "use" is often called "the first or primary nature," material in substance, while the sphere of exchange is termed a "second, purely social, nature" entirely abstract in make-up. . . . [First nature is] concrete and material, comprising commodities as objects of use and our own activities as material, inter-exchange with nature; [second nature is] abstract and purely social, concerning commodities as objects of exchange and quantities of value.[45]

The same piece of matter exists simultaneously in both natures; as physical commodity subject to the laws of gravity and physics it exists in the first nature, but as exchange-value subject to the laws of the market, it travels in the second nature. Human labor produces the first nature, human relations produce the second.

What is an abstract potential in the origins and fundamental character of human labor becomes a reality for the first time under capitalism. It is not just the immediate or the local nature of human existence that is produced under capitalism but nature as a totality. The mode of production based on capital strives toward the "universal appropriation of nature as well as of the social bond itself by the members of society. Hence the great civilizing influence of capital; its production of a stage of society in comparison to which all earlier ones appear as mere *local developments* of humanity and as *nature idolatry*."[46] Material nature is produced as a unity in the labor process, which is in turn guided by the needs, the logic, the quirks of the second nature. No part of the earth's surface, the atmosphere, the oceans, the geological substratum, or the biological superstratum are immune from transformation by capital. In the form of a price tag, every use-value is delivered an invitation to the labor process, and capital—by its nature the quintessential socialite—is driven to make good on every invitation.

This may appear to be the logic of Marx's argument, but did he not

also make clear in *Capital* that the labor process still employs "many means of production, provided directly by nature, that do not represent any combination of natural substances with human labour"?[47] Does this not render dubious the notion that nature is produced? It is necessary to look at two kinds of cases here. First, it is quite possible that in political economic terms, the natural substance embodies no exchange-value but is nevertheless, in use-value terms, profoundly altered by human labor, either directly or indirectly. This can happen with, for example, agricultural land where improvements to the land have returned all of their value and therefore been completely devalorized, but where the fertility and physical structure of the soil is greatly altered.[48] This can also be the case with more obvious products of labor such as buildings, which no longer have any economic trace of their origins in the production process, but certainly retain the physical characteristics of human artifice. More commonly, some aspects of nature may have been altered dramatically in their physical form by human activity, without this having been in any way an investment of socially necessary labor time. The production of toxic shock syndrome, cancer, and other humanly produced diseases are as much examples of this as the alteration of climate through human activity. As elements of first nature they are very much produced, though not commodities.

But there is a more stringent case where, indeed, even the form of natural substance has not previously been altered by human activity. Substantial parts of the geological substratum would probably count here, if one went deep enough. So too would the solar system, if one went far enough, that is beyond the moon and beyond some of the planets and beyond the assorted debris that has been jettisoned in space. But these rather extreme examples hardly testify to the falsity of the "production of nature" thesis, especially when one looks at more down-to-earth examples of supposedly unproduced nature, such as Yellowstone Park or Yosemite. These are produced environments in every conceivable sense. From the management of wildlife to the alteration of the landscape by human occupancy, the material environment bears the stamp of human

labor; from the beauty salons to the restaurants, and from the camper parks to the Yogi Bear postcards, Yosemite and Yellowstone are neatly packaged cultural experiences of environment on which substantial profits are recorded each year. The point here is not nostalgia for a pre-produced nature, whatever that might look like, but rather to demonstrate the extent to which nature has in fact been altered through human agency. Where nature does survive pristine, miles below the surface of the earth or light years beyond it, it does so only because as yet it is inaccessible. If we must, we can let this inaccessible nature support our notions of nature as Edenic, but this is always an ideal, abstract nature of the imagination, one that we will never know in reality. Human beings have produced whatever nature became accessible to them.

The unity of nature toward which capitalism drives is certainly a materialist unity but it is not the physical or biological unity of the natural scientist. Rather it is a social unity centered on the production process. But this unity should not be taken as implying an undifferentiated nature. There is, as was seen above, a distinction between first and second nature. But in light of the production of nature by capitalism, and the drive to make this process universal, how relevant is this distinction in contrast with the unity of nature? Certainly the economic structure presents itself as a second nature: "the laws of economy in all unplanned and unorganized production confront men as objective laws, against which they are powerless, hence *in the form of natural laws*." Thus Marx saw his task in *Capital* as one of laying bare "the economic law of motion of modern society." His "standpoint, from which the evolution of the economic formation of society is viewed as a process of natural history, can less than any other make the individual responsible for relations whose creature he solely remains, however much he may subjectively raise himself above them." Human beings certainly make their own history, but they do so not under conditions of their own choosing, rather under conditions given and transmitted from the past.[49]

But there is a potential problem with viewing the laws of economy and society in such a seemingly naturalistic fashion, for as Marx him-

self also said, in the famous letter to Kugelmann of 11 July 1868: "No natural laws can be done away with. What can change, in changing historical circumstances, is the *form* in which these laws operate."[50] If the economic laws of capitalism are indeed natural laws, Marx would seem to be saying that they, and by implication capitalism, cannot be done away with. Yet this would make no sense coming from Marx, the committed revolutionary who devoted his life to the struggle for socialism. Nor was this just a slip on Marx's part, a reversion to viewing nature as crudely outside society, since the reference to natural law here was not a reference to gravity or the laws of physics, but to the distribution of social labor. (It was this seeming contradiction, incidentally, which led Schmidt to see in Marx a distinction between logico-epistemological categories and economic ones, and from there to prepare his accusation of utopianism.)

The solution lies not in philosophical distinctions between categories but, as ever, in human practice, specifically in human history. For like gravity, the laws of the market can be obeyed or opposed, and in this way we can change the form in which they operate and in which they are experienced. But unlike gravity, there is nothing natural about the law of value; no society has lived without experiencing the operation of gravity, but many have lived without the law of value. However much it and other laws of the market are experienced in the form of natural laws, they are not equatable to gravity. This is precisely Marx's point when he says that the defeat of capitalism makes possible the end of the natural history of human beings and the beginning of true history, the end of societal laws experienced in the form of natural laws, and the beginning of truly social control over history. With its tremendous development of the productive forces, capitalism has put the question of the production of nature on the agenda. But it is a question that the capitalist mode of production itself is incapable of solving. It has unified nature for the future but cannot do it for the present.

The distinction between a first and second nature is therefore increasingly obsolete. As a philosophical distinction between abstractly or

ontologically equivalent or even similar realities, it was obsolete as soon as it no longer referred to the division between the human and non-human worlds. As a division between materiality and abstraction, the distinction between first and second nature certainly captured the complexity of societal organization and its distance from primal nature. But the ability of capital to produce the material world "in its own image"[51] rendered this distinction a victim of itself—an abstraction that had lost touch with a changing reality and the potential of human history. The production of first nature from within and as a part of second nature makes the production of nature, not first or second nature in themselves, the dominant reality. But there remains an important distinction to be made.

Engels hints at the distinction when he notes that our "mastery" of nature "consists in the fact that we have the advantage over all other creatures of being able to learn its laws and apply them correctly."[52] The production of nature is only possible given the identification and application of natural laws. But the identification of natural laws inevitably involves a clear knowledge of the limit of these laws, and thus the distinction between laws which are in reality natural and those which under a specific form of society are made to appear natural. This is not a philosophical distinction but a practical one. The difference between gravity and the law of value does not concern what can and cannot be produced, since the effect of gravity can quite easily be opposed and altered and quite opposite results obtained, simply by the identification and social application of other laws of nature. We do this every time we make an airplane fly, for example. The fundamental distinction that must be made is, rather, between what can and what cannot be *destroyed*. This distinction is realized in the practical process of social history, not as a process of philosophical speculation. Looking backward in history, the indications are that while the law of gravity cannot be destroyed, however much it can be opposed or the actual form of its operation socially determined, the "law" of value can be destroyed. Looking forward in history, only by discovering and identifying natural

laws will we actually be able finally to distinguish and reveal the natural laws that underlie human nature. This can be accomplished only in the process of destroying and overthrowing the social pyramids that present themselves as natural laws. Those in a society with the most accurate comprehension of human nature are not the high priests who preach the naturalness (meaning the inevitability) of so much of human and societal behavior. Rather it is those who have the most acute sense of what social monstrosities can be destroyed; it is they who best understand that human beings can create something more human.[53]

In its uncontrolled drive for universality, capitalism creates new barriers to its own future. It creates a scarcity of needed resources, impoverishes the quality of those resources not yet devoured, breeds new diseases, develops a nuclear technology that threatens the future of all humanity, pollutes the entire environment that we must consume in order to reproduce, and in the daily work process it threatens the very existence of those who produce the vital social wealth. But in the same breath capitalism must develop as part of itself the very force that can reveal how unnatural and vulnerable this mode of production is, and how historically temporary it can be. It is not just the relative recency of capitalism that points to it being temporary, but the production of its own internal contradictions which guarantee that temporary character. The production of nature is the means by which these contradictions are made concrete. In early societies, the contradictory relation with nature was expressed in crises of scarcity, and the effect was immediate. And as central as the production process was, crises of scarcity also represented the peripheral limits of society; natural scarcity determined the limits of social development. Under capitalism, social crises still focus on the production process but now lie at the heart of a complex social system. The production of nature is universal but the internal contradictions in this process are made equally universal. Today crisis does not spring from the interface between society and an external nature but from the contradictions at the heart of the social production process itself. Insofar as social crises are still attributed to natural scarcity today, this should be seen as a produced scarcity in nature.

Whether in the form of nuclear energy or in the revolt of the working class, the contradiction written into the production of nature emanates from the form of capitalism itself. Thus we should understand Marx not at all metaphorically when he writes that capitalism creates "barriers in its own nature," the final one of which is the working class, which it differentiates from the rest of humanity as the wage slaves of capital. This "barrier in its own nature" will, "at a certain stage of its development, allow [capitalism] to be recognized as being itself the greatest barrier to [its own development], and hence will drive toward its own suspension."[54] In the process of struggle against capital, it is the working class that will win the chance truly to define human nature. This is not at all to suggest that the working class today is somehow by definition more natural than the other classes. As a class alienated from control of the society that employs them, the working class are in every way unnatural and a product of capitalism. Nor is it meant to imply the inevitability of socialism. It is meant to suggest, however, the inevitability of revolt; it is a law of nature that the human animal, deprived of the means to fulfill its natural needs, will react to this deprivation, sometimes violently and sometimes also socially organized. The form of the revolt is governed by no natural law but is a social product. The victory of this revolt would bring with it the historically unique opportunity for human beings to become the willing social subjects not the natural subjects of their own history.

IV. Conclusion

When he taught at Yale, the great imperial geographer Isaiah Bowman used to tell his classes "that one could build a city of a hundred thousand at the South Pole and provide electric lights and opera. Civilization could stand the cost." This was at the time when the Peary expedition had just reached the Pole, in 1909. And while the notion of an urban South Pole probably represented a rather extreme corrective to his earlier attraction to environmental determinism, Bowman was undoubtedly correct. In the same vein he used to claim "that we could also build a mountain range in the Sahara high enough to evoke rainfall." And in more general

terms, twenty years later, he noted more precisely that "man cannot move mountains"—not, that is, without first "floating a bond issue."[55]

Predictably, the production of nature has followed a path guided less by the extreme unthinkability of the physical event, more by the profitability of the economic event. Predictably too, perhaps, it is in North America, which trail-blazed the expansion of world capitalism from 1918 until 1973, that we find some of the most accomplished examples of the production of nature. Thus in his iconoclastic analysis of *Megalopolis* Jean Gottmann offers the following:

> The Promethean endeavors that had long been confined to the dreams of European people, resigned to a status quo in their homelands, broke out of old bounds in this wilderness. . . . While there was in time an end to the expanse of free land, the great cities of Megalopolis developed, through a finer division of labor, more exchange of services, more trade, and more accumulation of capital and people, a boundless vista of unlimited resources for an affluent society.
>
> The expansion of Megalopolis could hardly have happened without such an extraordinary Promethean drive. As the frontier becomes more urban in its nature, as the wilderness to be tamed shifts in obvious fashion from the woods and the prairies to the city streets and human crowds, the vultures that threatened Prometheus may be more difficult to keep away.[56]

The potentially contradictory mix of opportunity and apocalypse in this vision is not wholly different from Marx's treatment of nature. Marx and Engels traditionally viewed the substance of the relation with nature in terms of growing mastery or domination over nature, although not in a one-dimensional sense: "Mastery over nature began with the development of the hand, with labour, and widened man's horizon at every new advance."[57] As the sun rose on capitalism, this progressive mastery of nature moved up a gear; for the first time historically, economic growth in the form of capital accumulation became an absolute social necessity, and the continual extension of the domination of nature became equally necessary. But capital, and the bourgeois society which nurtures

it, usher in not just a quantitative but a qualitative change in the relation with nature. Capitalism inherits a global world market—a system of commodity exchange and circulation—which it digests then regurgitates as the world capitalist system, a system of production. To achieve this, human labor power itself is converted into a commodity, produced like any other commodity according to specifically capitalist social relations. The production of nature at the global scale, not just an increased "mastery" over nature, is the goal of capital.

This is the logical if unstated conclusion of Marx's conception of the relation with nature, and in part of Engels's work, although the idea of a "dialectic of nature" clearly led Engels along a quite different and I believe erroneous path. The question is why they retained the language and in part the conception of "mastery" and "domination" over nature. In practice, the relation with nature progressed beyond one of mastery and domination as soon as the distinction between a pre-human first nature (the mastered) and a human second nature (the master) was rendered obsolete. "Mastery" does not at all describe the relation between the new first and second natures, the distinction between materiality and abstraction which fell heir to the earlier, simpler distinction. Matter is not somehow dominated or mastered by a world of abstractions—this would lead quickly to idealism—but specific pieces of matter the world over are produced (that is, their form is changed) according to the abstract laws, needs, forces, and accidents of capitalist society. The reality of the production of nature is much more obvious today in the late twentieth century than it was in the middle of the nineteenth, and this more than anything else explains why Marx could cling to the obsolete notion of mastery. A further century of capitalist development whipped on by the inexorable pursuit of relative surplus value should have made the idea of the production of nature into a dreadful cliché. That it has not, that far from being a cliché it is a novel, still almost quixotic idea, is testimony to the power of the ideology of nature.

The production of nature should not be confused with *control* over nature. Although some control generally accompanies the production

process, this is by no means assured. The production of nature is not somehow the completion of mastery over it, but something qualitatively quite different. Even Engels was careful to distinguish between mastery (which has far greater connotations of control than "production") and control: "Let us not . . . flatter ourselves overmuch on account of our human victories over nature," he says, then gives a paragraph of examples illustrating the cost of these victories and the "revenge" of nature. At each step, he concludes,

> we are reminded that we by no means rule over nature like a conqueror over a foreign people, like someone standing outside nature—but that we, with flesh, blood and brain, belong to nature, and exist in its midst, and that all our mastery of it consists in the fact that we have the advantage over all other creatures of being able to learn its laws and apply them correctly.[58]

The idea of revenge by nature carries something of the dualistic implications inherent in "mastery," but nonetheless, the essential point is a marvelous insight given the context (to which Engels elsewhere in the same work succumbed) of nineteenth-century scientific triumphalism. Thus the industrial production of carbon dioxide and of sulfur dioxide into the atmosphere have had very uncontrolled climatic effects: if it still has something of a speculative ring, the possibility of a greenhouse effect and the consequent melting of the ice caps has been supported by increasing numbers of scientists, while many of those rejecting the idea expect an equally dramatic cooling; and the increased sulfur dioxide content in the air is responsible for acid rain. Even, or perhaps especially, the production of the human hand was in no way a controlled process. And the most complete and elaborate of human productions, the capitalist system, is at the same time the most anarchic. Just as pollutants are integral products of the production process though not its immediate goal, much of the production of nature is not the deliberate goal of production. The production process is quite deliberate, but its immediate goal, profit, is reckoned in terms of exchange-value not use-value. The issue of control is vitally important, therefore, but only once it is viewed

in context. The first question is not whether or to what extent nature is controlled; this is a question framed in the dichotomous language of first and second nature, of pre-capitalist mastery and non-mastery over nature. The question really is *how* we produce nature and *who* controls this production of nature.

Capitalism develops the forces of production to the point where the unity of nature again becomes a possibility. But under capitalism this unity is only ever a tendency, continually promised by the drive toward universality. Capitalism creates the technical means but cannot itself fulfill the promise. The option as Marx said is socialism or barbarism; either is a unity of nature. The cruel irony of this option is more acute today, for with the threat of nuclear war, barbarism unifies nature only by obliterating it. But the class society that threatens the final barbaric defeat also offers the ambition of socialism. Socialism is neither a utopia nor a guarantee. It is however the place and the time where and when the unity of nature becomes a real possibility. It is the arena of struggle to develop real social control over the production of nature. Early in his life, Marx pictured communism as the "genuine resolution of the conflict between men and nature."[59] Whether this is true, remains to be seen—and to be done.

What is certain is the struggle over this conflict, the revolt against deprivation. In many ways it is a struggle to control what is "socially necessary." Like pollution, much of the production of nature is the indeliberate, uncontrolled result of the production process. They may be integral products of the labor process, but pollution and many other produced parts of nature are not bearers of "socially necessary labour time." The struggle for socialism is the struggle for social control to determine what is and is not socially necessary. Ultimately it is the struggle to control what is and is not value. Under capitalism, this is a judgment made in the market, one which presents itself as a natural result. Socialism is the struggle to judge necessity according not to the market and its logic but to human need, according not to exchange-value and profit, but to use-value.

Later in his life Marx was less speculative as regards the relation with nature, more circumspect about what communism may or may not be. The following passage from *Capital* addresses this issue, but compared with his earlier writing is politically more concrete, succinct, and resolute:

> the realm of freedom actually begins only where labour which is determined by necessity and mundane considerations ceases; thus in the very nature of things it lies beyond the sphere of actual material production. . . . Freedom in this field can only consist in socialised man, the associated producers, rationally regulating their interchange with nature, bringing it under their common control, instead of being ruled by it as by the blind forces of nature; and achieving this with the least expenditure of energy and under conditions most favourable to, and worthy of, their human nature. But it nonetheless still remains a realm of necessity. Beyond it begins that development of human energy which is an end in itself, the true realm of freedom, which, however, can blossom forth only with this realm of necessity as its basis. The shortening of the working-day is its basic prerequisite.[60]

The shortening of the working day is, as we might put it, the transitional demand. It is cast still in terms of exchange-value. The shorter the working day, the lesser the mass of surplus value produced in the form of profit for the capitalist class. The ultimate demand is for workers' control, control over the production process and hence control over the production of nature; that is, the overthrow of capitalism and its control of society through control of the exchange-value system. This is in order to control the sphere of use-values. The concept of "production of nature" in this way does what Schmidt's "concept of nature" wanted to do but never could: it "changes into the concept of political action."[61]

There will be those who see this analysis, indeed the very idea of the production of nature, as a sacrilegious effrontery, and a crude violation of the inherent beauty, sanctity, and mystery of nature. The meaning of nature to them is not only sacred, it transcends such vulgar considerations as production through real labor, sweat. About vulgarity they

are not wrong; they would simply escape it and thus deny it. But it is real. Contemporary industrial capitalism and all it implies is a vulgarity of capitalism, it is not a vulgarity of necessity. It is a product of present reality, not a phantom of marxist theory. Others will complain that if not quite vulgar, still for a theory of nature it is terribly anthropocentric. But like the explicitly romantic charge of vulgarity, this too is a product of nostalgia. As soon as human beings separated themselves from animals by beginning to produce their own means of subsistence, they began moving themselves closer and closer to the center of nature. Through human labor and the production of nature at the global scale, human society has placed itself squarely at the center of nature. To wish otherwise is nostalgic. Precisely this centrality in nature is what fuels the crazy quest of capital actually to control nature, but the idea of control over nature is a dream. It is the dream dreamt each night by capital and its class, in preparation for the next day's labor. Truly human, social control over the *production* of nature, however, is the realizable dream of socialism.

CHAPTER THREE

The Production of Space

UNLESS SPACE IS conceptualized as a quite separate reality from nature, the production of space is a logical corollary of the production of nature. Several assumptions would be required concerning the meaning of space and the relationship between space and nature, but the argument demonstrating the production of space would be fairly straightforward. The problem of course lies in the assumptions because not unlike "nature" the concept of space tends to be taken for granted, its meaning unproblematic, while in fact it is a vague concept with a multiplicity of sometimes contradictory meanings. No matter the critical stance we take toward the concept, it is difficult to escape some basic notions of space—space as a field, as a container, or as simple emptiness; in Western societies today this view of space is virtually instinctive in

common parlance. But "in the interests of science," as Albert Einstein wrote in explicit reference to the concepts of space and time, "it is necessary over and over again to engage in the critique of these fundamental concepts, in order that we may not unconsciously be ruled by them."[1] Rather than simply rely on the authority of the previous chapter, then, we shall attempt to derive the argument of the production of space on its own merits; only in the final stages will it be linked with the argument around nature. This will not only provide a stronger argument for the production of space but will afford us the chance of examining critically the concept of space. This in turn should provide an adequate conceptual foundation for examining the geography of capitalism and specifically for showing the relation between the production of nature and the unevenness of capitalist development.

Our concern here is with geographical space which we can take in its most general sense as the space of human activity, from architectural space at a lower scale up to the scale of the entire surface of the earth. Another, more specific, meaning of geographical space will evolve as the analysis develops; the important point here is to distinguish geographical space from the many other meanings and treatments of space which cannot be considered here.[2] Since the early 1960s the conceptualization of geographical space has been the object of considerable discussion. Two particular conceptions of space have been highlighted: absolute space and relative space. The discussion emerged in reaction to the so-called quantitative revolution in geography, which materialized in the early 1960s. Previously geographers had tended to rely almost exclusively upon the absolute conception of space, but a broader view of the subject-matter accompanied the technical innovations of the "quantitative revolution."[3] In these different conceptions of space, very different relationships to nature and to material events are implied. In talking about the production of space, we are trying to take the discussion a step further. But to do this it is necessary to be aware of the origins and meaning of the distinction between absolute and relative space. In fact these concepts originate in the physical sciences and in the philosophy

of science, and so it is to the scientific treatment of space that we turn first in order to understand the broader historical and epistemological origins of the concepts that help shape our present comprehension of the geography of capitalism.

I. Space and Nature

In 1920, only a few years after the publication of the general theory of relativity, Alfred North Whitehead declared: "It is hardly more than a pardonable exaggeration to say that the determination of the meaning of nature reduces itself principally to the discussion of the character of time and the character of space."[4] Recognizing the intimate relationship that exists between space and nature, Whitehead evoked the radically new post-Newtonian conception of space implied by relativity theory. But insofar as he saw space as somehow primary to nature, he retained a vision of space that had become social as well as scientific orthodoxy at least since Newton. Historically, space has always been conceptualized in relation to nature, but the substance of the relationship has been viewed in very different ways. Newton's conception of absolute space is the exception that proves the rule. In order to view space as a quite independent entity existing separate from matter (absolute space) Newton also had to theorize a parallel if secondary conception of relative space which could be defined only in relation to material events. As Newton himself makes clear, the definition of absolute space represented a clear break with previous notions of space which to a greater or lesser extent were confused with material events:

> I do not define time, space, place, and motion as being well known to all. Only I must observe, that the common people conceive those quantities under no other notions but from the relation they bear to sensible objects. And thence arise certain prejudices, for the removing of which it will be convenient to distinguish them into absolute and relative, true and apparent, mathematical and common. . . .
>
> Absolute space in its own nature, without relation to anything external, remains always similar and immovable. Relative space is some movable di-

> mension or measure of the absolute spaces; which our senses determine by its position to bodies.[5]

Today nearly three centuries later, it is not the concept of his adversaries but Newton's own absolute concept which indirectly informs the common prejudice concerning space. In the advanced capitalist world today we all conceive of space as emptiness, as a universal receptacle in which objects exist and events occur, as a frame of reference, a coordinate system (along with time) within which all reality exists. This view of space appears so self-evident that, despite its vagueness and the ambiguity that results from continually being pressed into service as metaphor, in everyday usage we are almost wholly uncritical of it. Space is simply a given universal of existence.

Before Newton as well as immediately after him, relative conceptions of space tended to prevail. According to the relative conception, space is not independent from matter. Spatial relations are actually relations between specific pieces of matter, and thus are purely relative to the movement, behavior, and composition of matter and material events. Although the Greek atomists may have had a partly developed concept of absolute space, it was only with Newton that the distinction between absolute and relative space is made explicit. Whereas Einstein's relativity theory seemed to reinstate the priority of relative space, seeing absolute space as only a special case of relative space, nonetheless the relative space of twentieth-century physics is markedly different from the pre-Newtonian relativity of space. Now while there is no automatic translation from the spatial concepts of mathematical physics into social science, relativity in physics was a powerful influence leading geographers to reassess their conceptions of space. But the history of the concept of space in physical science is more complex than this initial definitional view of absolute and relative space would suggest, and in physics and philosophy the debate continues today.[6] There are three strands to this history which are particularly pertinent to the task at hand; each concerns some aspect of the relation between space and nature, and we shall examine all three here. In the first place, the history of the concept is marked by a progressive

abstraction of space from matter. This distinction which we make today did not apply in earlier societies. Space was not differentiated from matter nor from force or power, human or otherwise. The unity of nature was complete; space, substance, and meaning were one. This primitive treatment of space is nicely described by Robert Sack:

> In the primitive view, land is not a thing that can be cut into pieces and sold as parcels. Land is not a piece of space within a larger spatial system. On the contrary, it is seen in terms of social relations. The people, as part of nature, are intimately linked to the land. To belong to a territory or place is a social concept which requires first and foremost belonging to a societal unit. The land itself is in the possession of the group as a whole. It is not privately partitioned and owned. Moreover, it is alive with the spirits and history of the people, and places on it are sacred.[7]

At this stage it is place not space that people experience. The abstraction from specific places to space in general has not yet been made. Space and its use (mythical and material) are indistinguishable as are social and physical space. Consciousness of space is a direct efflux of practical activity. Cassirer offers a particularly geographical illustration:

> Ethnology shows us that primitive tribes usually are gifted with an extraordinarily sharp perception of space. A native of these tribes has an eye for all the nicest details of his environment. He is extremely sensitive to every change in the position of the common objects of his surroundings. Even under very difficult circumstances he will be able to find his way. When rowing or sailing he follows with the greatest accuracy all the turns of the river that he goes up and down. But upon closer examination we discover to our surprise that in spite of this facility there seems to be a strange lack in his apprehension of space. If you ask him to give you a general description, a delineation of the course of the river he is not able to do so. If you wish him to draw a map of the river and its various turns he seems not even to understand your question. Here we grasp very distinctly the difference between the concrete and the abstract apprehension of space and spatial relations. The native is perfectly

> acquainted with the course of the river, but this acquaintance is very far from what we may call knowledge in an abstract, a theoretical sense.[8]

As has been pointed out elsewhere, it is likely that the concept of space as an identifiable object of consciousness preceded that of time.[9] The development of the concept of space, separate from particular spaces and places, coincided with a larger milestone in human history—the origins of philosophy, of conceptual thought which is no longer the direct efflux of immediate practical activity. The earliest Greek philosophers continued to confound space with matter but as is obvious from the case of Pythagoras, they were also able to view space in more abstract conceptual terms. Later theories of Aristotle and Plato and of the Greek atomists were able to prize space further apart from matter, seeing it as increasingly independent. For Plato empty space is viewed as an undifferentiated material substratum, leading the way toward his reduction of matter to space, a theme which lives on today. Taking a different course, Aristotle likened space to a force field, again a theme which remains today. But whereas space was somehow more basic than matter for Plato, the opposite seems to have been true for Aristotle. As Jammer perceptively put it, space was "an accident of matter" for Aristotle.[10] But the interesting thing here for our purposes is less the difference between these notions and the different theories they presage, more it is the agreement between Plato and Aristotle concerning the unseparability of space and matter. Geometry is the crucial link. For with both Plato and Aristotle, geometry is the glue that sticks space to matter. Geometry is explicitly an abstraction from real physical bodies at the same time as it describes the structure of space.

As this suggests, there was not one but rather numerous pre-Newtonian concepts of space often surviving alongside each other and only more or less related. It was Newton's achievement to corral these into a unified framework for conceptualizing space; with the concept of absolute space and its relationship to relative space, he offered, as it were, a single abstraction of abstractions. Space was made a thing in itself. But what was

gained in generality with the absolute concept of space was purchased at a price. The details of individual spaces could be treated only in relation to material events and objects, that is as relative spaces, which, while they had to obey the universal laws of physics, could be constituted by any number of specific processes and relationships that were not immediately determined by the laws of physics. In less exact but more accessible language, the complete abstraction of physical space from matter provoked the possibility of defining other kinds of space in distinction to physical space; when physical space became absolute, it left behind a conceptual "space" that would eventually be filled by such concepts as "social space." So long as space and matter remained to some extent confounded, human material activity could not be conceptualized in abstraction from physical space. But insofar as the space of human activity is inseparable from the material objects and events that constitute that activity, the absolute concept of space was incapable of defining this "social" space since it was quite independent of material phenomena. To be sure, social activity could still be seen as occurring "in" absolute space, but in its absoluteness this space remains untouched by the specificity of human spatial activity. The separation of relative from absolute space thus provided the means by which a social space could be separated from physical space, with this social space defined in relation not to an independent and external first nature but rather to a humanly produced second nature. As Newton's relative space is a subset of absolute space, social space emerged as a differentiated subset of physical space. Although the emergence of social space as a discrete concept had to wait virtually until the subset of relative space swallowed the set which once contained it, this is the origin of its independence.

Now it might seem as if the advent of relativity theory and the return of relative space marked a reversal in the process of abstraction. And in the sense that spatial relations are again viewed as integral to material relations, this might have been true. But something else happens with the advent of the theory of relativity. The Newtonian separation of absolute physical space from matter did not rob geometry of its role as the

glue connecting space and matter, but it did pose problems for Euclidian geometry, which was directly verifiable in material experience. So long as space and matter were connected, this direct verifiability was a necessary condition of geometry. Their separation meant that the description of physical space no longer needed such direct experiential verification. The nineteenth century saw the development of non-Euclidean geometries, especially with Riemann, but until relativity theory these remained purely abstract mathematical constructions, disconnected from material experience. Space was conceptualized as an n-dimensional manifold. With Einstein, whose work was dependent on this mathematics, n-dimensional space apparently earned a material referent. Not only does the meaning of nature seem to reduce itself to the meaning of space and time, as Whitehead suggested, but the shape and structure of space-time seemed to reduce themselves to mathematical relationships. Three-dimensional space or four-dimensional space-time gave way to n-dimensional mathematical space; physical space is superseded by mathematical space. Whereas the concept of physical space always retained some reference to practical human experience, mathematical space is a complete abstraction beyond this. The claim that the structure of reality is mathematical can be verified only by reference to material phenomena at the scale of the planetary system or at the scale of subatomic physics. For even the mathematical physicist who from nine-to-five figures the universe in n-dimensions would not conceive himself, on a trip to the corner shop, as operating in n-dimensional space. In conclusion, then, if our concept of space is the product of continual abstraction, the definition of space as an abstract framework in which all reality exists must at least be questioned. Is space "itself" a framework for reality, or is it the abstract concept of space which is a framework for how we view reality?

If the first thread through the history of the concept of space is one of steady abstraction, the second thread is one of dialectical development. There is a qualitative as well as a quantitative movement. In his classic work on the philosophy of space and time, Hans Reichenbach made the

following observation about the historical progression from the Ptolemaic universe to the Copernican to the Einsteinian:

> The theory of relativity does not say that the conception of Ptolemy is correct; rather it contests the absolute significance of either theory. It can defend this statement only because the historical development passed through both of them, and because the conquest of the Ptolemaic cosmology by Copernicus gave rise to the new mechanics, which in turn gave us the means to recognize also the one-sidedness of the Copernican world view. The road to truth has followed in this case the purest form of the dialectic which Hegel considered essential in every historical development.[11]

As with the universe, so with space. This evolution of conceptual universes also implies a dialectical development in the concept of space. Thus the concept of relative space implied by the general theory of relativity is on the one hand a combined reversal and development beyond absolute space, and on the other a clear progression beyond pre-Newtonian space. These are qualitative changes. Pre-Newtonian space was simultaneously physical and social; post-Einsteinian space is mathematical.

Einstein's general theory of relativity held out the promise of recombining space and matter but in a more sophisticated manner than the essential confusion which characterized pre-Newtonian space. This promise was most completely expressed by Ernst Mach, several decades before Einstein's discovery. Mach aimed to make spatial structure completely subordinate to the distribution and movement of matter, that is, to accomplish the victory of relative space over absolute space by proving the priority of matter over space. Relativity theory seemed to provide the experimental evidence that would consummate the victory, and Einstein himself set out to prove what he dubbed "Mach's Principle." But neither Einstein nor anyone coming after him has succeeded in discovering this proof. If the immediate reason for this lies in certain experimental results which seem to contradict Mach's Principle, one can also point to the abstractness of the concept of space employed.

Whereas Mach's Principle implies the recombination of space and matter, the mathematical concept of space involved in relativity theory assumes the most complete abstraction of space from matter. Whatever the experimental evidence (and this is not at all to devalue its importance) it is difficult to see how, beginning with a concept of space so completely abstracted from material events, one could conclude by proving the relativity of space in terms of matter. Insofar as the notion of mathematical space is taken for granted in this context, it may be that Einstein himself was unable to escape the danger that he identified—that of being ruled by one's concepts. Thus, unable to prove Mach's Principle yet still holding to the general theory of relativity, Einstein retreated into the familiar terrain of philosophy, and the distinction between ontology and epistemology; the radicalism of the scientific frontier is quickly replaced by a rehashed conservatism. "Although matter may provide the epistemological basis for the metrical field," wrote Jammer, in summary of the position Einstein came to hold, "it does not necessarily have ontological priority over the field."[12] In practice, although Einstein continually struggled to break new ground, this has meant the retention of Newton's assumption of the priority of space over matter. Hence Whitehead's reduction of nature to space and time wherein despite the universal acceptance of relativity theory matter is subordinated to space not vice versa. The potentially revolutionary recombination of space and matter is short-circuited by traditional philosophical assumptions and distinctions which are themselves the products of conceptual abstraction. Thus the dialectic identified by Reichenbach remains historically incomplete.

The third thread to be examined is the material basis of the development of the concept of space. For Reichenbach's Hegelian dialectic also has a material foundation; the concept of space is after all a social product. Newton was explicit about the fact that "geometry is founded in mechanical practice, and is nothing but the part of universal mechanics which accurately proposes and demonstrates the art of measuring."[13] Euclid's geometry, to which Newton adhered, was in early Greek times the

product of practical human activity, as was the non-Euclidean geometry which underpinned post-Newtonian physics. Examining the influence of Gauss upon Riemann and upon the modern notion of mathematical space, Jammer made clear the importance of this material foundation. "Once again," he said, "we see that, historically viewed, abstract theories of space owe their existence to the practice of geodetic work, just as ancient geometry originated in the practical need of land surveying."[14]

Not just this qualitative development of the concept, but the progressive abstraction has a material basis. Alfred Sohn-Rethel has argued that the abstraction of space into a concept removed from direct practice is closely connected to the development of commodity exchange. The abstraction from use and from the material aspect of a commodity, which is inherent in the exchange act, provokes the possibility of the abstraction of space from immediate material existence:

> Time and space rendered abstract under the impact of commodity exchange are marked by homogeneity, continuity and emptiness of all natural and material content, visible or invisible (e.g. air). The exchange abstraction excludes everything that makes up history, human and even natural history. . . . Time and space assume thereby that character of absolute historical timelessness and universality which must mark the exchange abstraction as a whole and each of its features.[15]

If Sohn-Rethel is correct concerning the material basis for the development of concepts of space, then his argument offers insights into the historical priority of space as a concept over time.[16] More important, his argument suggests not simply that our concepts of space change historically but that they develop in relation to the changing treatment and experience of space. As the relation with nature develops historically, so the spatial dimension of human activity is altered and with it our conceptions of space. We shall focus explicitly on the treatment of space as a commodity under capitalism, but before turning to this central concern, it is necessary to finish the argument at hand and to move from physical space in the sciences to explicitly geographical space.

As the example of absolute space illustrated, scientific concepts of space have greatly influenced our broader social conceptions of space, at least since Newton. Yet contemporary social conceptions of space bear no resemblance to the abstract n-dimensional spaces of mathematical physics. Whatever the historical relationship has been, social space today is quite different from scientific space. Whereas scientific space attempts to abstract completely from social activity and events, social space is generally treated as the field of just such activity. As we suggested, the conceptual basis for the emergence of a separate social space lies most clearly in Newton's separation of relative from absolute space. With Newton's absolute space, the world of physical, biological, and geographical phenomena could be treated as the natural basis of *physical* space. *Social* space on the other hand could be treated as a purely relative space existing within absolute space; the relativity of social space is determined by the particular social relations that obtain in a given society.

The material basis for the bifurcation of physical and social space lies in the development of second nature out of first nature. Society had to be separated from nature in practice before social space could be distinguished completely from physical space. This absolute physical space came to be associated with the given, *natural* space of first nature; physical and natural space are here indistinguishable. The concept of social space, on the other hand, was abstracted further and further from any reference to natural space. Natural philosophy developed as a specialty out of philosophy while natural economics moved in the opposite direction toward the classical political economics of Adam Smith and others. But if the philosophical distinction between natural and social space can be traced back to Kant, and if classical political economy of the eighteenth and early nineteenth centuries represents the earliest practical recognition of social space, properly instituted, the concept of social space was not made explicit until the end of the nineteenth century. Emile Durkheim is generally credited with coining the term social space; writing in the 1890s, he was careful to insist that social space was quite different and separate from "real" space, by which he meant physical

space.[17] With this, social space seems to be spatial only in a metaphorical sense. Just as mathematical space has come to represent the abstract field of natural events, social space is the humanly constituted abstract field of societal events, and can be defined in any number of ways. An object or relationship may be real enough, for example the working class or the wage-labor relation, but locating them as points in social space implies absolutely nothing about their location in physical or natural space.

Now *geographical* space is something different again. However social it might be geographical space is manifestly physical; it is the physical space of cities, fields, roads, hurricanes, and factories. Natural space, in the sense of inherited absolute space, is no longer synonymous with physical space in that physical space can be social in definition. This distinction emerges in the discussion of geographical space because geographers have to deal with physical space in general and not just the natural space of first nature. With their objects of study located squarely within social space, most social sciences could abstract from physical space, incorporating it into the analysis only as an occasional external given. Clearly geography did not have this luxury and, if only in recent years, has had to face head-on the apparent contradiction between physical and social space, and the internal differentiation of natural space from physical space in general. The more that geographers attempt to identify within absolute natural space the socially relative and socially determined patterns and processes of economic location, the more problematic became the relationship between natural and social space, and the more ambiguous became the meaning of physical space. In this way the nascent dualism of space and society came into increasingly sharp focus. For many of those most involved in the early analytic treatment of economic geography this dualism presented no problem. Their methodological positivism was built on a bedrock of philosophical dualisms: object-subject, fact-value, nature-society, and so on. For them there was no necessary contradiction between the existence of space in absolute terms and its social use according to economic criteria: space is given on the one side, society on the other side uses it; at best there is an "interaction" of separate realms.[18]

Although this work, rooted in a thoroughly positivist paradigm, announced the serious debut of relative space on the geographic agenda, it was the completion of Newton's vision, not its overthrow. No one denied the ontological priority of absolute space; rather economic space was seen as a derivative and entirely relative subset of absolute space. For others, however, this relativization of geographical space did not go far enough. The urban uprisings of the 1960s had provoked much interest in the form and development of urban social space and, predictably, a series of radical critiques of the established treatments of urban society. There were many strands to those critiques, but in the present context two particular strands stand out. Both critiqued the dualism of space and society and both placed the critique within the wider project of developing post-positivist geographic theory. The first strand is humanist geography which is most responsible for introducing the concept of social space into the geographic literature. The humanist tradition, which climbed to prominence employing footholds from phenomenology, rejected the exclusivity and pretensions to objectivity of positivist science, and proposed the importance of subjective modes of knowing. Geographical space was not simply an objective structure but a social experience imbued with interwoven layers of social meaning; objective space was only one among a number of social conceptions of space. In humanist geography "social space," not physical or objective space, was made the object of inquiry. Durkheim's original concept was adopted with the proviso that social space was now seen as explicitly geographical; "social space" was used to tackle the dualism which it helped to create.[19]

The second critical strand which broached the question of space and society was the radical political tradition. This tradition drew at first upon the political movements that prevailed in the late 1960s and early 1970s, then began to base itself increasingly upon a variety of marxist-inspired theoretical traditions. The concern here was not to deny the objectivity of geographical space but to explain it as simultaneously objective and the product of social forces. Different societies use and organize space in different ways and the geographical patterns which

result bear the clear imprint of the society which uses and organizes this space. The spatial form of the capitalist city, for example, is quite different from the feudal city. In a delightful symbolic illustration of the historical relativity of physical urban space, Harvey notes that it "is no accident that church and chapel spires dream over Oxford (a town created in the age of church power), whereas, in the age of monopoly capitalism, it is the Chrysler building and the Chase-Manhattan Bank building which brood over Manhattan Island."[20] It is not just that space and society "interact"; a specific historical logic (that of capital accumulation) guides the historical dialectic of space and society.

Our conception of geographical space is considerably more sophisticated today as a result of these post-positivist traditions. Yet in reality we have only taken the first step toward dissolving the dualism with which we began. We have come to understand and assert the unity of space and society, yet it is difficult to take the next step, from assertion to demonstration, without in practice altering our conception of space. The notion that space and society "interact" or that spatial patterns "reflect" social structure is not just crude and mechanical in its construction, but also prohibits further insights concerning geographical space; at root this is because this view of the relation between space and society remains tied to the absolute conception of space. Two things can only interact or reflect each other if they are defined in the first place as separate. Even having taken the first step of realization, then, we are not automatically freed from the burden of our conceptual inheritances; regardless of our intentions, it is difficult to start from an implicitly dualistic conception of space and society and to conclude by *demonstrating* their unity. In different forms, therefore, this dualism survives in the post-positivist traditions which sought to exorcize it.[21] The conception of the "production of space" is meant to provide a means of taking the next step and enabling us to demonstrate rather than simply assert the unity of space and society.

"All mysteries which lead theory to mysticism," Marx wrote, "find their rational solution in human practice and in the comprehension of that

practice."[22] With "the production of space" human practice and space are integrated at the level of the concept of space "itself." Geographical space is viewed as a social product; in this conception a geographical space which is abstracted from society is a philosophical amputee. Further, the relativity of space becomes not a philosophical issue but a product of social and historical practice; likewise, the unity of geographical space is a social rather than philosophical result.[23] While the emphasis here is on the direct physical production of space, the production of space also implies the production of the meaning, concepts, and consciousness of space which are inseparably linked to its physical production. The thesis of the production of space pushes Reichenbach's Hegelian dialectic a step further. The agency responsible for the conceptual abstraction of space—human practice—is introduced into the concept itself. Not just Hegel but Aristotle too is turned on his head—as a result of historical evolution rather than philosophical error. Space is no longer an "accident of matter" but a direct result of material production.

II. Space and History

We have already seen that early human societies did not differentiate between place and society. In immediate experience all places are imbued with social meaning. There is no abstract space beyond place and no place beyond society. Place and society are fused as a unity. This is what Robert Sack defines as the "primitive" conception of space.[24] Such societies inhabit natural space, meaning quite literally the space created out of natural processes, activities, and forms, social or otherwise. Place is treated in terms of social relations which themselves have not developed beyond the natural state.

With the development of social economies based on commodity exchange, a second nature emerges and with it a crack in the unity of place and nature. This, as we saw above, marked the origin of the increasingly abstract conception of space employed in physical science. Abstraction is the hallmark of Sack's "civilized" conception of space. This conception of space is not tied to immediate place but implies the possibility of

abstracting from immediate place, and of the conceiving of spatial extension beyond immediate experience. As a result the conceptual fusion of space and society is broken, and space begins to develop an independent conceptual existence. But the development of a second nature leads not just to a conceptual development, but to the development of a socially produced space out of (and every bit as real as) natural space. This can be illustrated in a number of ways. The medieval city offers an obvious example. In Euclidean terms, the distance from the ground floor to the fourth floor of a city tenement may be equivalent to the height of a tree in the primal forest beyond the city walls. But the same distance between floors of the tenement can also be measured in terms of social rank and class, whereas the height of the tree cannot. An earlier illustration is offered by the first separation of public and private space. This separation could be described in terms of specific places—the place where hunting is done and wars fought as against the place where crops are gathered and grown and children reared. But it could also be described in terms of the sexual division of labour, men generally controlling the first space and women operating primarily in the second.[25]

With the emergence of a second nature, the conceptual separation of society and space emerges. For the first time, the rules of society may be aspatial, quite abstract from spatial considerations. As long as productive human activity remains tied to the land as agricultural production, the social production of space *separate* from natural space is limited in extent. But the division of labor between industrial and agricultural activity emancipates some productive work from immediate spatial constraints and this social division is manifested in the spatial separation of town and country. And although towns themselves are spatially fixed, the activities that take place within them and the rules that order these social activities are not at all spatially fixed. They can be generalized from one town to another, or else the same town in different historical periods can pursue quite different activities and operate under quite different social rules. There is a nascent contradiction here. In order to lay down permanent spatial roots, that is to achieve a fixed territorial

definition, early societies must develop to the point where they can begin to emancipate themselves from space.

This contradiction is even more manifest with the emergence of the state. Two characteristics marked the earliest states, according to Engels. On the one hand they "created a public force which was now no longer simply identical with the whole body of the armed people." Thus the state originated in direct response to class distinctions and slavery, private property and the oppression of women; its function was to arbitrate the resulting conflicts in favor of the ruling class while presenting itself as "above" society. But also, "secondly, for the first time [the state] divided the people for public purposes, not by groups of kinship, but *by common place of residence*. . . . In contrast to the old gentile organization, the state is distinguished firstly by the grouping of its members *on a territorial basis*." The old gentile bodies, based on blood ties, no longer occupied a single territory. "The territory was still there, but the people had become mobile," necessitating a new division of society based on control of territory. "This organization of the citizens of the state according to domicile is common to all states. . . . Only domicile was now decisive, not membership of a kinship group. Not the people, but the territory was now divided: the inhabitants became a mere political appendage of the territory."[26] Thus does nationalism, and every other form of localism, find its historical roots in the division of society by class and gender and in the formation of a state through which the ruling class can rule.

The state at this point represents the apex of real social abstraction from nature, the most timely social part of second nature, yet is manifestly territorial in jurisdiction. On first appearance this necessary territorial definition of the state might seem to represent a solidification of the bond between geographical space and society, but in fact the reverse is true. Certainly, through the cumbersome state institutions they have hatched, specific societies are more tied than ever to particular spaces. But the state can justify and define its authority over society only through such abstract principles of social intercourse as democracy, liberty, moral

right, etc. Such principles are themselves the products of particular class societies. Thus while particular states may have a distinct and limited territorial basis, the social principles underlying such states are readily mobile. A given state, and the society it belongs to, therefore find themselves more spatially rooted than ever before and simultaneously more mobile. Armed with its political and economic principles, the product of philosophical abstraction, the state can expand into new territory, or it can contract; it can even relocate altogether. Of course, the ambitious state must also be armed with more concrete possessions—weapons, food, and the means of transportation—and these depend on the level of economic advancement. But the point is clear. The first intimations of a spaceless conception of society, an abstract spaceless second nature (social space), becomes possible with the explicit spatial definition of the state.

In one direction space becomes an increasingly profound underpinning to societal development. With the expansion of second nature and with the development of the economic, social, and technological means for such expansion, small local city states expand and greater territories fall under their jurisdiction. But there is nothing absolute about this process; it is very much a product of internal development and external competition (economic and military). Eventually, the city state gives way to the regional state—the duchy, the barony, the kingdom—and more recently to the nation state. As Sack puts it, "coordination of economic functions was achieved by shifting the basic fusion of society and place to the larger geographic scale of the absolute state and then to the modern nation state."[27] From small beginnings the entire geographical space of the globe is divided as part of the process of societal expansion. Territorial differentiation and the universalizing of the world market proceed as a single process. Geographical expansion is synonymous with societal expansion and development; the latter occurs, at this stage, only by expanding the geographical arena in which space is societally produced. Geography lies at the cutting edge of human progress.

But in another direction, space is simultaneously rendered increasingly

irrelevant to social intercourse. As the economic, technological, political, and cultural relations develop and expand, the institutional framework for handling these relations also becomes more complex, and increasingly loses any intrinsic spatial definition. The more society emancipates itself from space in this fashion, however, the more space can be transformed into a commodity in the strictest sense. If the emergence of the world market sets the boundaries for this social project, capitalism attempts to fill in the pieces. Before pursuing this issue directly, it will be necessary to make some general observations concerning space as a commodity.

III. Space and Capital

SPACE AS COMMODITY

It is a common misconception that Marx's analysis of capitalism is nonspatial. This is not quite correct; it would be more accurate to say that the lively spatial implications of Marx's analyses were rarely developed. What is true is that neither Marx nor subsequent marxist theorists have succeeded in establishing a proper conceptual foundation for treating geographical space. But if we look at Marx, a more complex picture emerges. In *Capital* Marx was concerned primarily with value: its measurement by labor time, the origin of surplus value, the accumulation of value in the form of capital. It is generally assumed that in order to make these arguments, Marx abstracted from the use-value of commodities; it was only their value and exchange-value that were important. This too is a misconception. Marx returns to the sphere of use-values periodically in order to advance the dialectical analysis of capital. And how did Marx define use-value? The "geometrical, chemical [and] other natural properties" of a commodity make it a use-value.[28] From the foregoing discussion of the scientific conception of space and the relationship between space and matter, it would make sense to begin by including the spatial properties of a commodity as among these natural properties and therefore as part of the use-value of a commodity. And in fact, where Marx does refer to space, this tends to be at precisely the points in his arguments where he reincorporates use-value into the analysis.[29]

In one place at least, Marx is explicit about viewing spatial properties as integral to use-value. In the transportation of people or commodities, he says, "a material change is effected in the object of labour—a *spatial* change, a change of place. . . . Its spatial existence is altered, and along with this goes a change in its use-value, since the location of this use-value is changed. Its exchange-value increases in the same measure as this change in use-value requires labour."[30]

If we posit spatial relations in this way as an attribute of use-values, then besides the obvious step from the production of nature to the production of space, several key insights are made available. In the first place, as Harvey has shown, it provides a sturdy theoretical foundation for the sometimes flimsy notion of spatial integration. For value to become the universal form of abstract labor, as indeed it strives to do in the capitalist mode of production, different concrete labor processes in different places must be brought together in the market. The social isolation of particular labor processes, so detrimental to the universalization of value, cannot be overcome without first overcoming the spatial isolation of different processes. "Spatial integration—the linking of commodity production in different locations through exchange" becomes a strict necessity for capital.[31] As Harvey suggests, this is presumably what Marx had in mind in the following statement:

> Abstract wealth, value, money, hence *abstract labour*, develop in the measure that concrete labour becomes a totality of different modes of labour embracing the world market. Capitalist production rests on the value or the transformation of the labour embodied in the product into social labour. But this is only [possible] on the basis of foreign trade and of the world market. This is at once the pre-condition and the result of capitalist production.[32]

Thus it is no accident that Marx's most explicit inclusion of space under the rubric of use-values came in a discussion of commodity transportation.

If we return to the concepts of absolute and relative space and examine them in the context of this argument, then something else of importance

emerges. Insofar as we are concerned with the concrete labor process, our conception of space is essentially absolute. The particularity of labor implies the particularity of its spatial attributes. With abstract labor, however, the situation is different. The realization of abstract labor as value implies a spatially integrated system of commodity exchange, money relations, credit facilities, even the mobility of labor. This requires the construction of specific transportation and communication links between individual places of concrete production, and demands that we are able to conceive of space in relative as well as absolute terms. The integration of an erstwhile isolated place of production into a national or international economy, for example, does not alter its absolute location, but in the process of altering its relative location, this act of spatial integration also enhances the realization of abstract labor as value.

Now this is a historical not merely a conceptual distinction, and here we get confirmation of a conclusion that was stated rather abstractly above. We know already from Marx that the historical development of capitalism entails the progressive universalization of value as the form of abstract labor. This involves not just the production of geographical space through the development of transportation networks, but the progressive integration and transformation of absolute spaces into relative space; absolute spaces are the raw material for the production of relative space. Furthermore, viewed historically in this way, the social determinants of the relativity of geographical space become apparent. It is not Einstein, nor physics and philosophy, which in the end determine the relativity of geographical space, but the actual process of capital accumulation.

Before embarking on a more specific examination of space and capital, it remains to clarify what is meant by spatial properties, spatial relations, and geographical space as a whole. The form in which a use-value occurs—its spatial extension in one, two, or three dimensions, and its resulting shape—comprise its *spatial properties*. But it is not just the intrinsic substance of a commodity that determines its use-value. Rather it is the object's usefulness in relation to other objects, events,

and activities. Use-value is in the first instance a relation, and as part of the set of relations that determine a particular use-value are a set of *spatial relations*. This applies not just at the level of individual commodities where, for example, the use-value of a house is determined not only by its dimensions in feet and inches but also by its internal design, its proximity to transport routes, sewage lines, work, services, and so on. We can also talk of particular spatial relations that help to determine the form of such composite commodities as the city or the region. It is spatial relations, whether understood in terms of absolute or relative space, that lie at the basis of our analysis of location. Absolute location is simply a special case of relative location, one in which we abstract from the social determinants of distance. *Geographical space* as a whole is different again. It is the totality of spatial relations organized to a greater or lesser extent into identifiable patterns, which are themselves the expression of the structure and development of the mode of production. As such, geographical space is more than simply the sum of separate relations that comprise its parts. Thus the division of the world into underdeveloped and developed worlds, however inexact, can only be comprehended in terms of geographical space as a whole. It involves the patterning of geographical space as an expression of the relation between capital and labor. Likewise, spatial integration can be understood as an expression of the universality of value if we look not at specific spatial relations but at geographical space as a whole.

CONTEMPORARY HISTORY OF SPACE

Capitalism inherits as a condition of its successful development a market for its goods which is organized at the world scale. But if it inherits a mode of circulation which operates at the world scale, capitalism must strive to make equally universal the mode of production. Accumulation for accumulation's sake and the inherent necessity of economic expansion lead to the spatial as well as social expansion of the domain of wage labor. The process of exploration which helped piece together the world market is increasingly overshadowed by the process of colonial-

ism which not only draws pre-capitalist societies into the world market but eventually introduces the specifically capitalist wage-labor relation into these societies. Although there are significant exceptions, including the retention of slavery and the fossilization of pre-capitalist relations of production in the service of the capitalist world market, wage labor is made increasingly universal. The universality of the wage-labor relation under capitalism frees not only the working class but also capital from any inherent tie to absolute space. Under the earlier feudal societies, serfs were tied to the land of the manor and thus the definition of class relations included a definition of the absolute space of the serfs work. Freedom from serfdom could be won only by fleeing the lord's land and living within the city walls for a year and a day. Not so the wage laborer who is defined by the double freedom that he is free to sell his labor power as a commodity and is also freed from possession of any of the means of production or subsistence necessary for survival. He is therefore free to move, indeed in most cases must move to the city since he is deprived of any means of subsistence in the countryside.

We are now in a position to develop and refine the contradiction noted above, that while social development leads to an increased emancipation from space in one direction, spatial fixity also becomes an increasingly vital underpinning to social development. The universalization of wage labor and with it value, an inherent tendency in capital, leads relentlessly toward the emancipation of social relations and institutions from any inherited absolute space—from what we called above "natural space." The mobility of capital, and to a lesser extent of labor, is the clearest manifestation of this necessity. At the push of a button today, $500 million can be flashed from Singapore to the Bahamas via the City of London, as if no physical distance existed between them.[33] But emancipation from natural space only heightens the necessity of producing relative space. As a condition of the universalization of value, transportation costs and the time devoted to transportation must be reduced to a minimum. The relative distance between places of production and consumption, and the means to overcome this distance—in short their relative

location—grows in importance in proportion to the accumulation of capital and the multiplication of the commodities, communications, and credits that must be moved. Likewise, as the scale of the production process increases with the development of the productive forces, it becomes increasingly imperative that larger and larger numbers of workers are spatially concentrated in close proximity to the workplace. Along with the obvious political benefits to capital of such an arrangement, this keeps the journey to work to a minimum and thus enables wages to be kept lower. Capital can effect a social emancipation from natural space only to the extent that it involves itself in the simultaneous production of relative space.

Expressed as territory, geographical space is made an appendage of social development. The notion that things happen "in space" is not just a habit of thought but one of language too, and yet in its appeal to absolute, natural space it is anachronistic, even nostalgic, and a barrier to a critical understanding of space. By its actions, this society no longer accepts space as a container, but produces it; we do not live, act, and work "in" space so much as by living, acting, and working we produce space.

But capital does not succeed in eliminating absolute space altogether, nor indeed does it attempt to. It does seek to emancipate itself from natural space, but does so only by producing certain absolute spaces of its own as part of the larger production of relative space. Somewhat like Newtonian space after Einstein, the priorities are reversed; absolute space becomes a special case in a more relative universe. The point is that where absolute space occurs in geographic terms today, it is the product of human activity; the absoluteness of such spaces is a social product, not a feature of natural space. In the transition to capitalism, the Enclosures represented a remarkable historical creation of absolute space. As capital extends its sway, the entire globe is partitioned into legally distinct parcels, divided by great white fences, real or imaginary. At a different scale, today's world is divided into 160 or more discrete nation states, and this is as much a necessity for capital as the geographical partitioning of private property. With their traditional concern for

boundaries and their cartographic skills, geographers were at the forefront of the effort to divide the world into absolute spaces. The British school of geography in particular owed much of its professional existence to this kind of activity.

Although generally unstated, implicit recognition of the fact that capitalism produces specific absolute spaces is undoubtedly behind the recent attempt by some marxists to treat space as a means of production. This definition also has the merit of attempting to integrate space into the main body of marxist theory. The most obvious case where geographical space functions as a means of production is in the transportation industry. Here the distance between origin and destination is a means of production. For to paraphrase Marx's quip about nature as a universal means of production, hitherto no one has discovered the art of transporting commodities and objects from one place to another without changing their location. No matter how it is measured, whether in absolute or relative terms, the pure spatial distance from origin to destination is one of the means of production in the transport industry. More specifically, it is a raw material. The greater the development of the means of transportation and communications, the more geographical space is drawn into the economy as a means of production.

But space functions as a means of production in a more general way in industrial production as a whole. Strictly speaking, land is a means of production only in agriculture (to the extent that agricultural labor still cultivates the soil) and in some mineral-extraction activities, while with other industries it is simply a condition of the production process. In general, however, the spatial extent and even the qualitative form of land employed in direct production can be considered an integral component of the means of production. Something of this is suggested in the following passage from Marx:

> In a wider sense we may include among the instruments of labour, in addition to these things that are used for directly transferring labour to its subject, and which therefore, in one way or another, serve as conductors of activity, all

> such objects as are necessary for carrying on the labour process. These do not enter directly into the process, but without them it is either impossible for it to take place at all, or possible only to a partial extent. Once more we find the earth to be a universal instrument of this sort, for it furnishes a locus standi to the labourer and a field of employment for his activity.[34]

Now this spatial field of employment includes not only the immediate space occupied by the subjects, objects, and instruments of labor, but also such material requirements as storage. The importance of geographical space as a means of production can be illustrated concretely by comparing the space consumed in a steel mill or auto-assembly plant with that of a bakery or an electric power plant. It is not merely that different production processes have different "space requirements"; rather, in the process of building productive forces into the environment, space is produced according to the spatial properties of this set of productive forces.

But the fact that geographical space can function as a means of production should not lead us, as it has too often done, to a rigid treatment of space as a means of production only.[35] It is one thing to understand that at a global scale space can be pressed into the service of capital as a means of production but quite another to deny any other function to space. What is lost in this definitional reductionism is the relativity of geographical space and the relationship between relative and absolute space as these are produced under capitalism. Space may function as a means of production but it functions as a lot more. What lurks behind this whole question, in fact, is the issue of scale and this will be dealt with in detail in chapter 5. For the present let it suffice to say that the identification of distinct spatial scales amounts to the assumption that some given space or range of spaces can be treated as absolute space. We treat these spaces as fixed, for example "urban space" or "space of production," in order to examine the relationship between different concrete spaces at that scale, or to examine the internal processes and patterns of activity at that scale. In short, the identification of spatial

scales involves an implicit assumption about the relationship between relative and absolute space, and in chapter 5 we shall show that this is not an arbitrary theoretical issue but that, integral to the production of space, capital produces certain distinct spatial scales of social organization. These can be visualized as islands of absolute space in a sea of relative space. It will be necessary, then, to *derive* spatial scales out of the analysis of capitalist development and structure rather than simply to assume certain habitual scales as given.[36]

It was suggested earlier that capitalist development was a continual transformation of natural space—inherited absolute space—into produced relative space. We are now in a position to amplify this theme as a means to demonstrate precisely how geographical space has become an increasingly central concern as regards the survival of capitalism. In the early period of capitalism, societal expansion and development was simultaneously geographical. Societal expansion was achieved through geographical expansion; towns expanded into urban centers, pre-capitalist states expanded into modern nation states, and the nation states expanded where they could into colonial empires. If the geography of capitalism developed through the production of relative space, then this was accomplished in the beginning through expansion in absolute space. As the wage-labor relation pushes into every corner of the globe, the world market inherited by capital is transformed into the specifically capitalist world market, constituted increasingly by the universality of value as the form of abstract labor. As long as this absolute expansion expresses the progress of capital, the absolute concept of space is not just useful but necessary for understanding the production of space. But by the late nineteenth century it was no longer the case that social and economic expansion were accomplished primarily through geographical expansion; as was reflected in the fortunes of the established schools of geography following the First World War, geography in this sense no longer lay at the cutting edge of capitalist expansion. The absolute expansion of nation states and of their colonies came to an end with the final partitioning of Africa in the 1880s.[37] Certainly there remained

some internal islands of non-development, and indeed at the urban scale the process was not yet complete, but mopping these up would not on its own sustain the necessary economic expansion of capitalism. Geographic absolutism and economic necessity parted ways. Here is Lenin in 1916, summarizing the conclusions of the contemporary German geographer Alexander Supan, and amplifying them in the light of the experience of the First World War:

> the characteristic feature of the period under review is the final partition of the globe—final, not in the sense that a *repartition* is impossible; on the contrary, repartitions are possible and inevitable—but in the sense that the colonial policy of the capitalist countries has *completed* the seizure of the unoccupied territories on our planet. For the first time the world is completely divided up, so that in the future *only* redivision is possible, i.e., territories can only pass from one "owner" to another, instead of passing as ownerless territory to an "owner."[38]

The last hundred years of capitalist development have involved the production of space at an unprecedented level. But it has been accomplished not through absolute expansion in a given space but through the internal differentiation of global space, that is through the production of differentiated absolute spaces within the larger context of relative space.

The differentiation of geographical space in the last century or so is a direct result of the need, inherent in capital, to immobilize capital in the landscape. It is all very well that $500 million can be whizzed around the world at the push of a button, but it must come from somewhere and be en route to somewhere. This somewhere is the production process, where in order to produce surplus value it is necessary that vast quantities of productive capital be spatially immobilized for relatively long periods in the form of factories, machinery, transport routes, warehouses, and a host of other facilities.[39] The spatial immobilization of capital in this way, or as national capitals delimited by the boundaries of the nation state, is simultaneously the production of a differentiated geographical space. Insofar as this immobilization process is matched by the

mobility of capital, these opposing tendencies throw up not a random but a patterned internal differentiation of world space. As the production of space proceeds with the development of capitalism, therefore, the seemingly abstract contradiction between absolute and relative space is increasingly internalized within the "space economy of capitalism" itself. As long as the absolute geographic expansion of capital continues, the contradictions which riddle the social fabric of capital can be cast in aspatial terms; space can be treated as external. When economic development is turned inward toward the acute internal differentiation of geographical space, the spatial dimension of contradiction not only becomes more apparent; it becomes more real in that space is drawn closer to the core of capital. Accordingly, where crises develop in the general system of capitalist production, these are manifested ever more directly (and visibly) in the geography of capitalism.

This is what is meant when we claim that space is on the agenda as never before. In fact we could have predicted this result, albeit somewhat abstractly, from Marx's concept of relative surplus value. The more it develops, the more capitalism depends upon the appropriation of relative surplus value. Indeed Marx called this striving for relative surplus value the hallmark of industrial capitalism "and the distinguishing historic character of the mode of production founded on capital." Historically, "a point is reached at which the development of the productivity of social labour becomes the most powerful lever of accumulation."[40] A number of things follow from this, and Marx examined some of them. In a famous section in *Grundrisse* he draws attention to the need for capital to encourage and even manage the growth of science in order to feed the continual revolutionizing of fixed capital. In *Capital*, he points to the increased scale of the productive forces and the concentration and centralization of capital that accompanies this process. The latter has clear spatial implications which Marx only touches on, but there is a more general spatial argument to be made. To extend Marx's metaphor, if relative surplus value becomes the most powerful lever of accumulation, then fixed capital is the pivot on which this lever gains its power. If,

as value, fixed capital merely preserves the abstract labor embodied in the objects of labor, as use-value fixed capital facilitates the conversion of concrete labor power into the form of the new commodity, which embodies relative surplus value. It is therefore the use-value of fixed capital which is crucial, and in proportion as it becomes pivotal for the production of relative surplus value, so too do the spatial properties of fixed capital. Though by definition fixed capital is not necessarily spatially fixed, in practice it is the most spatially fixed element of productive capital in that it remains in the production process for more than one production period. As fixed capital moves increasingly toward center stage as the catalyst in the production of relative surplus value, it drags with it geographical space which becomes increasingly bound up in the struggle of the capitalist class to ensure the survival of capitalism.

The renewed importance of geographical space is reflected in the increased attention paid to issues such as the centralization and decentralization of industry, the selective industrialization of the Third World, runaway shops, regional decline, deindustrialization, nationalism, urban redevelopment and gentrification, and the more general issues of spatial restructuring during crisis. But if there is consensus on the importance of these issues there is little consensus on what they mean. For every author emphasizing the leveling of spatial differences there is another with different data emphasizing their divergence.[41] The point of course is that these geographical patterns are the product of contradictory tendencies: first, the more that social development emancipates space from society, the more important does spatial fixity become; second, and foremost, the tendencies toward differentiation and universalization, or equalization, emanate side by side in the belly of capitalism. As the latter contradictory dynamic plays itself out in reality, it results in the production of space according to a very particular pattern. Space is neither leveled out of existence nor infinitely differentiated. Rather the pattern which results is one of *uneven development*, not in a general sense but as the specific product of the contradictory dynamic guiding the production of space. Uneven development is the concrete manifestation of the production of

space under capitalism. The next two chapters are devoted to deriving and explaining the process of uneven development and there it will become clearer how the production of geographical space has a growing role in the evolution and survival of capitalism. But before embarking on that task, we shall conclude this chapter by placing the present analysis of "the production of space" in the context of the marxist tradition.

IV. The Production of Space and Marxist Theory

LEFEBVRE

The idea of the production of space is not new. In Anglo-American marxism, David Harvey has pioneered the examination of "*created space* . . . as the overriding principle of geographic organization," as has Castells in the French tradition.[42] But it is Henri Lefebvre who has been the most consistent, most imaginative, and most explicit proponent of the "production of space." So far as I am aware, it was Lefebvre who coined the phrase "the production of space." Lefebvre's focus is less on the production process, more on the reproduction of social relations of production which, he says, "constitutes the central and hidden process" of capitalist society, and this process is inherently spatial. The reproduction of social relations of production occurs not only in the factory or even in a society as a whole, according to Lefebvre, "but in space as a whole"; "space as a whole has become the place where reproduction of the relations of production is located." Spatial relations are generated "logically" but become "dialecticized" through human activity in and on space. It is "this dialecticized, conflictive space . . . that produces reproduction, by introducing into multiple contradictions." Further, the emergence of the spatial problematic marks a new phase of capitalist development. "Capitalism has found itself able to attenuate (if not resolve) its internal contradictions for a century, and consequently, in the hundred years since the writing of *Capital*, it has succeeded in achieving 'growth.' We cannot calculate at what price, but we do know the means: *by occupying space, by producing space*." For Lefebvre, space is the space in which the final episodes of the capitalist drama are being played out. "Space,

occupied by neo-capitalism, sectioned, reduced to homogeneity yet fragmented, becomes the seat of power." This makes a transitional period of capitalist development—"neo-capitalism"—in which the "spatial contradiction" between "state capitalism and state socialism" prevents the complete stabilization and victory of capitalism. A "vast displacement of contradictions" has taken place; concretely this means that "social needs today are, above all, urban needs" and the social revolution against capitalism must be a spatial revolution—the urban revolution.[43]

There are many issues here, for Lefebvre is truly an original thinker. He is not only responsible for the idea of the production of space but has attempted to give it an equally original theoretical foundation. He is very explicitly concerned with both the historical development of capitalism and the resolution of the space-society dualism. In proposing the "socio-spatial dialectic" Ed Soja has endorsed, refined, and developed the basic ideas in Lefebvre's vision; at the same time he attempts to correct what he sees as a systematic misinterpretation of Lefebvre in the Anglo-American tradition, and in the process builds a valuable bridge between the two traditions.[44] This is not the place for an elaborate critique of Lefebvre, although that is a long overdue undertaking. What I wish to do here, rather, is simply to suggest that some of Lefebvre's basic insights can be developed differently and in such a manner that they lead to more trenchant conclusions concerning the production of space. For with this idea he has opened the door to a practical comprehension of space under capitalism. He has taken seriously and applied to "space" Marx's admonition in the eighth thesis on Feuerbach that "all mysteries which lead theory to mysticism find their rational solution in human practice and in the comprehension of this practice." And yet, while able to make the intellectual leap and to see space as produced through human activity, Lefebvre does not discard or even qualify the absolute concept of space. He uses the concept in all ways—as social space separate from physical space, as absolute space, as theoretical space, and so forth—and seems to make little or no distinction between them. Metaphor is mixed indiscriminately with reality. This conceptual indeterminacy becomes

especially problematic where Lefebvre closes in on the political conclusions of his analysis, for space seems to fall entirely out of the picture. The nitty-gritty politics of the current "crisis of reproduction" have little or nothing to do with space. Or as Castells says of Lefebvre's analysis, "space, in the last resort, occupies a relatively modest and subordinate place in the whole analysis."[45] Conceptually and theoretically, space is placed in center court, but in practice, when the game starts, it is nowhere to be seen. The dualism of space and society lingers on.

Lefebvre understands the importance of geographical space in late capitalism yet he is unable to get the full value from this insight. Apart from the conceptual indeterminacy concerning space, the reason for this seems to be the attempt to link the importance of space to the larger political project according to which the problematic of reproduction displaces that of production. The reproductionist thesis originates in the experience of postwar capitalism when indeed capitalist society attained a remarkable extension of commodity consumption and managed to integrate the reproduction process more fully into the economic structure. And the struggles of the 1960s were to a significant extent over community-based issues rather than workplace strikes. But whether this means, as Lefebvre suggests, that the reproduction of the relations of production becomes the most determinate function, and that the class struggle is now essentially over reproduction issues rather than traditional workplace issues, remains to be seen. On the surface, the changes which Lefebvre identifies may be real enough, but it is not clear that they amount to such a deep structural reversal as he proposes. The 1980s could well provide the historical litmus test which confines the pure reproductionist theory to the dustbin of history.

Lefebvre's most valuable insight is his recognition of the renewed importance of space and his encapsulation of this in the idea of the production of space. But his insistence on tying this insight to a reproductionist theory has, I think, deprived him of the full value of the insight, and of the means to develop it further. For the theory of the production of space does not represent a radical break with the classical marxist tradition,

especially if we are correct about the production of nature and the relation between nature and space.[46] It is a strikingly original idea, as we have said, and goes well beyond anything imagined in that tradition, but at the same time, one can detect fragmented embryos of this idea in the work of Marx, Luxemburg, and Lenin. Especially in Lenin, there is an implicit identification of the central contradiction, noted above, between differentiation and equalization. Through the highly selective lenses of this contradiction, we shall attempt to identify these historical precursors to our present concern.

Marx, Luxemburg, and Lenin

Marx was not directly concerned to elaborate a specific conception of space and tended to assume geographical space as absolute. But he was equally aware of the relativity of geographical space, and this is nowhere clearer than in his discussion of the "annihilation of space by time." While Marx is not the original author of this phrase, he characteristically converted a piece of idealist terminology, steeped in mystical allusion, into a sharp critical tool with new materialist intent.[47] Inherent in capital is the desire to reduce the time and costs of circulation so that the expanded capital can be returned more quickly to the sphere of production and accumulation can proceed more rapidly. But the circulation of value requires also a physical circulation of the material objects in which value is embodied or represented. All forms of capital—productive capital, commodity capital, and money capital—must be transported, and so as the productive forces develop, part of this development is devoted to developing the means of transportation and communication, both inside and outside the sphere of production. This leads, as Marx says, to the continual drive to overcome all spatial barriers and to the annihilation of space by time:

> The more production comes to rest on exchange value, hence on exchange, the more important do the physical conditions of exchange—the means of communication and transport—become for the costs of circulation. Capital by its

> nature drives beyond every spatial barrier. Thus the creation of the physical conditions of exchange—of the means of communication and transport—the annihilation of space by time—becomes an extraordinary necessity for it. . . . Thus, while capital must on one side strive to tear down every spatial barrier to intercourse, i.e. to exchange, and conquer the whole earth for its market, it strives on the other side to annihilate this space with time, i.e. to reduce to a minimum the time spent in motion from one place to another. The more developed the capital, therefore, the more extensive the market over which it circulates, which forms the spatial orbit of its circulation, the more does it strive simultaneously for an ever greater extension of the market and for the greater annihilation of space by time. . . . There appears here the universalizing tendency of capital, which distinguishes it from all previous stages of production.[48]

The historical tendency for society to emancipate itself from space is most developed under capitalism and takes a unique form that expresses the inner rationale of capital: emancipation through annihilation. In this context, the "universalizing tendency of capital" represents an inherent drive toward spacelessness, in other words toward an equalization of conditions and levels of production. We recognize essentially the same reality in the popular impressionistic observation that we occupy "a shrinking world." What Marx offers is a historically specific explanation of the necessity of this geographical shrinkage. Spatial development is treated as an integral moment of overall societal development rather than simply as an independent effect. The so-called shrinking world is not merely an effect of generalized progress of modernization but the specific necessity of the mode of production based on the relation between labor and capital.

Marx was keenly aware of the more concrete spatial implication of this "universalizing tendency" of capital. He had his eye not only on the development of railways and their leveling of the space-economy of individual nations, but also on the world economy. Thus he seems to have expected that among the results of British colonial rule in India

would be a forced development of the Indian economy on the basis of capital, and that this would rapidly bring the Indian economy up to the level of development achieved in Britain.[49] In addition to the spatial implications, Marx was aware of the other side of the coin—the function of spatial expansion for capital. Thus he ends volume one of *Capital* with a chapter on colonization, not just because there in the colonies and in the bourgeois theories of colonization the reality of exploitation is written out for everyone to see, but also because the colonies fulfill a special function for capital. Through the relations of foreign trade, and economic and geographic expansion, the contradictions at the heart of capital can to a greater or lesser extent be displaced toward the periphery of the system, and the limits to capital could be extended.[50]

Marx focused on the equalizing tendency of capital and viewed it in the context of an expanding world market. It was this process more than anything which fashioned his conception of space under capitalism. His relative lack of concern for the differentiation of geographical space is undoubtedly a product of the time in which he lived; the development of railroads and the European colonization of the globe were at the forefront of the production of space in this period. Thus in *Capital* Marx deliberately abstracted from at least one source of geographical differentiation: "In order to examine the object of our investigation in its integrity," he wrote, "free from all disturbing subsidiary circumstances, we must treat the whole world as one nation, and assume that capitalist production is everywhere established and has possessed itself of every branch of industry."[51] This was not simply an arbitrary assumption that would make Marx's task easier; consistent with his logico-historical method, this assumption reflects his conviction that capital would progressively level these geographical differentiations. It is not, as we shall see in chapter 4, that Marx was unaware of geographical differentiation, but that he saw it of secondary importance compared with the "universalizing tendency" of capital and the consequent drive toward equalization.

Writing half a century later, Rosa Luxemburg criticizes Marx for assuming the universal domination of the capitalist production, but nonetheless expresses the logical conclusion of Marx's own position. Capitalism, she says, cannot survive without the existence of non-capitalist societies to function as markets and sources of raw materials, labor, etc.: "capitalism in its full maturity also depends in all respects on non-capitalist strata and social organizations existing side by side with it."[52] Thus imperialism for Luxemburg was simply the process of eating non-capitalist societies and by definition was the final phase of capitalism. When the absolute geographical expansion of capital came to an end, so too necessarily did capitalism. Taking Marx's analysis further than he himself would have taken it, Luxemburg treats geographical differentiation less as an internal tendency in capital, more as a legacy from the past which is inexorably destroyed with the forward march of capital. It is a temporary matter of the articulation of modes of production.

Lenin too saw imperialism as the highest stage of capitalism, but he had a more astute sense of the geographical implications of imperialism and of capitalist development in general. In his early work on *The Development of Capitalism in Russia*, first published in 1899, Lenin was keenly aware of the internal differentiation of space which accompanied the expansion of capital. He discussed the territorial division of labor according to which regions were differentiated according to industrial specializations, and he traced this back to the social division of labor brought about by the expansion of capital. More fundamental was the territorial differentiation of town and country which occupied a large part of Lenin's attention in this work. He also devoted a section to the differentiation of urban space between the city and the suburbs, and again related this to the social division of labor.[53] In later works, Lenin developed these insights further. His treatment of imperialism is explicitly geographical and there he insisted that although the globe is already divided between the nations and corporate trusts of the world, still the "backward" nations provide profitable destinations for exported

capital. Like Marx and Luxemburg, then, Lenin equates the geography of imperialism with the survival of capitalism, but precisely because he sees the roots of geographical differentiation in capital itself, he does not immediately equate the progress of capital with the elimination of such differences. In fact, Lenin goes so far as to insist that the differentiation between "backward" and advanced nations is increased not decreased by imperialism. He accuses Kautsky (with his notion of ultra-imperialism) of encouraging that "profoundly mistaken idea which only brings grist to the mill of the apologists of imperialism, viz., that the role of finance capital *lessens* the unevenness and contradictions inherent in the world economy, whereas it really increases them."[54]

In the same work, however, Lenin does acknowledge the real forces, inherent in capitalism and particularly prevalent in finance capital, which strive "to eliminate the unevenness in the distribution of capital among localities and branches of industry."[55] The same contradiction which we saw in the last section, between the increased differentiation of space on the one hand, and the equalizing tendency of capital, toward the emancipation from space, on the other—this same contradiction appears implicitly in Lenin's analysis of imperialism. It remains implicit, as does the recognition that in practice this contradiction drives the distinctly capitalist production of space. There were limits clearly to Lenin's recognition of the new importance of geographical space, and this is nowhere more obvious than in his philosophical writings. There, although he railed in defense of "objective physical space" against what he saw as Machian idealism, he affirms the absolute conception of space and he nowhere relates his abstract philosophical discussion to the concrete spatial structure of capitalism, which occupied him in other works.[56] But Lenin did for the first time identify both sides of this basic contradiction; what remained was for this contradiction to be made explicit and a theoretical treatment of space developed.

But this did not happen. Writing in the same period, Nikolai Bukharin comprehended this contradiction when he wrote that the internationalization of capital could take place only through a simultaneous

development of national capitals.[57] Although the internationalization of capital is a strong theme in marxist economic writing today, the sharpness of the geographical contradiction suggested by Bukharin is not generally retrieved. The same is true of analyses at other spatial scales, where issues of regional and urban development in general are attracting substantial and growing attention.[58] The analysis of the production of space, a thoroughly contemporary notion, leads us in the same direction as Lenin's analysis of the geography of imperialism. It is from this common foundation, in the contradictory character of the production of space, that we begin the analysis of uneven development. What we are looking for now is not just an understanding of the origins and patterns of the geography of capitalism. We are also trying to understand exactly how, in Lefebvre's words, the production of space has contributed to the survival of capitalism.

CHAPTER FOUR

Toward a Theory of Uneven Development I

The Dialectic of Geographical Differentiation and Equalization

IN LITTLE MORE THAN A DECADE, the uneven development of capitalism has become a popular even fashionable topic for research. The reason for this undoubtedly has to do with the general resurgence of interest in marxism following the social uprisings of the 1960s, and the fact that today the process of uneven development presents itself in more vivid detail at all spatial scales than in any previous period. There is virtual consensus concerning the necessity of understanding this seemingly recent phenomenon and a rapidly growing literature on the subject has already begun to appear. To date, however, this new research is characterized by a paucity of theoretical treatments seeking to understand uneven development in the context of a marxist (or non-marxist) analysis of capitalist development.[1] It is this task which is taken up here.

The starting point is given in the previous chapter where it was seen that the contradictory tendencies toward differentiation and equalization determined the capitalist production of space. In action, this contradiction emanating from the core of the capitalist mode of production inscribes itself in the landscape as the extant pattern of uneven development.

Before embarking on this analysis, it is necessary to make absolutely clear what we are and what we are not talking about; "uneven development" means many things to many people, depending mostly upon the historical context in which it was used. In the marxist tradition, reaching back to Lenin, the concept is employed variously in an economic, political, and philosophical sense, and in the introduction to *Grundrisse* Marx throws off a comment on the uneven development of material vis-à-vis artistic production, and on the uneven development of relations of production vis-à-vis legal relations. In a reminder essentially to himself, Marx noted that these issues should be treated concretely and not in the "usual abstractness."[2] Marx's exhortation about the concrete is undoubtedly correct, but the generality of his examples would be misleading if taken as a research agenda. In order to treat these issues more concretely it is necessary to establish first the economic—or more correctly, the political economic—basis of the uneven development of capitalism in the opposing tendencies toward differentiation and equalization. We shall limit ourselves here to establishing this political economic basis of uneven development.[3]

From the preceding chapters it should also be clear that we are concerned with the specifically capitalist process and pattern of uneven development. This would seem self-evident and barely worth repeating if not that even the most astute theorists have insisted on the historical and philosophical universality of the phenomenon. Uneven development, it is asserted, is a "universal law of human history," or more abstract still, it is "the essence of contradiction."[4] Consensus over uneven development is therefore achieved at a price; the potentially penetrating insights of the theory are dissolved when uneven development is seen as a universal metaphysics, its meaning reduced to a lowest common denominator.

This philosophical approach not only denies valuable theoretical opportunities but much more important, it is historically erroneous. Marx recognized the universality of labor as a natural attribute of human existence but his entire analysis of capitalism depended on separating the natural propensity to labor from the socially and historically determined forms of the labor process under the capitalist mode of production. It is a hallmark of bourgeois ideology, indeed, to universalize the specific social forms and relations of the capitalist mode of production into permanent, "natural" relations. This holds for "uneven development." As a philosophical universal its critical, epistemological cutting edge is not only blunted, but is potentially turned back on its user as a reactionary ideological weapon lurking within the corpus of marxism itself. It is not, as Ernest Mandel suggests, the "capitalist world system" that is a "*function* of the universal validity of the law of unequal and combined development";[5] rather, it is uneven development that is a function of the contemporary universality of capitalism.

There is no suggestion in all this, finally, that pre-capitalist development was somehow even rather than uneven. What is implied is that whatever the reasons for the unevenness of pre-capitalist development, they are quite different from those pertaining to capitalism, which has its own distinct geography. The geography of capitalism is more systematically and completely an integral part of the mode of production than was the case with any earlier mode of production.

If the present enthusiasm surrounding uneven development is not to lead into a "so-what" cul-de-sac where only the obvious is stated, but is instead to reveal fundamental insights about the geography of capitalism and about the structure and development of capitalism in general, then the process must be kept in sharp focus. This is why, in preparation for the analysis of uneven development, we have been so concerned to sort out a conception of space. As it is commonly used, "uneven development" refers not simply to the geography of capitalism but also to uneven rates of growth between different sectors of the capitalist economy. In equating uneven development here with its particularly geographical

expression, there is no attempt to deny the other aspects of the process. This is done to redress the trenchant neglect of the spatial dimension of capitalist development, and to emphasize in practice the conclusion from the previous chapter that spatial unevenness has no meaning except as part of the larger contradictory development of capitalism. It may be that this is bending the stick back too far, and that is certainly a risk. But without bending the stick, it is impossible to tell whether it is bent too far.

I. The Tendency Toward Differentiation

THE NATURAL BASIS OF DIFFERENTIATION

The division of labor in society is the historical basis of the spatial differentiation of levels and conditions of development. The spatial or territorial division of labor is not a separate process but is implied from the start in the concept of the division of labor. Marx was acutely aware of this, as witnessed by his often repeated but scarcely understood comment about town and country being the foundation of every well-developed division of labor based on commodity exchange. And if one examines the earliest division of labor—the sexual division of labor between men and women—this too is generally thought to have had a territorial expression, males generally beginning to develop a spatially wider domain.[6]

For most of human history, the division of labor has been based upon differentiation of natural conditions. "The possibility of surplus-labour and of surplus-value," Marx wrote, "arises from a given productivity of labour" which appears first "as a gift of nature, a productive power of nature."[7] Given different natural conditions, the same expenditure of labor will result in different quantities of a given commodity, and this implies the possibility (but only the possibility) of surplus product in one place though not in another. Further, the qualitative differentiation of nature sets certain limits upon which production processes can take place in a given area. Thus cotton cannot be grown naturally in the Arctic, and coal cannot be extracted from geological strata that contain

none. This is the natural basis to surplus product. It is also the natural basis to the division of labor which, for its development, is entirely dependent upon the production of surplus product. In a more developed economy, the appropriation of natural advantage ceases to be accidental. Indeed, natural differences are internalized as the basis for a systematic social differentiation of the labor process. Qualitative differences in nature translate into qualitative and quantitative differences in societal organization; the societal division of labor expresses itself spatially.

The more advanced division of labor between agriculture and industry is equally a spatial phenomenon. The division of labor itself is now the result of a social dynamic—the productive consumption of surplus product and the progressive development of the productive forces—but it continues to express itself according to given natural conditions. That is, there is nothing in nature that impels a division between agriculture and industry, but once this social division emerges the inherent differentiation of nature affects which activities will take place where. The same principle applies not just for the general division between agriculture and industry but also for the internal subdivision of these major sectors. The location of different agricultural sectors takes place in relation to different natural conditions, and the same is true of different industrial sectors which are influenced more by locational differentiation in the availability of raw and auxiliary materials.

This sort of explanation—explaining the geographic location of social activities according to differentiations in nature—is the stock-in-trade of traditional geography. Well into the present century, and to a considerable extent even up to the present day, the priority of nature and of inherent differentiations within nature have been canonized in the study of geography. The environmental determinism that thrived particularly in the American school of geography was only an extreme version of the conventional wisdom that natural geographic conditions determined to a greater or lesser extent the type and location of human activities. As a research agenda, environmental determinism was never entirely hegemonic, and was superseded by a less dogmatic concern to study "areal

differentiation." Borrowed from the German school of geography, where Hettner was concerned to explain composite geographical variations across the earth's surface as the result of natural variations, the concept of "areal differentiation" was at the center of the American geographical tradition at least until 1960. This length of tenure was due not only to a certain stagnation in geographic thought, but to the stature within the discipline of two of the concept's major proponents. It was Carl Sauer, in 1925, who seems first to have discussed "areal differentiation" per se, and Hartshorne was one of its most enthusiastic proponents. By 1960, purely natural explanations for areal differentiation were no longer so prevalent, though the tradition did retain clear signs of its origins in Hettner. In all of these traditions, the spatial concentration of wealth was seen as first and foremost the result of natural differentiation in physiography, resources, climate, etc.[8]

But the most explicit and at the same time most sophisticated attempt to relate differentiations in natural endowment with the spatial concentration of capital comes from commercial geography. Of mainly British origin, "commercial geography" described the variety of products derived from different nations and regions of the world, and attempted to explain the different patterns of agricultural and industrial production on the basis of different natural endowments. This led not only to preliminary explanations of exports and imports from a nation or region, but also to the definition of specific regions according to what they produced. This led to the familiar regional geography which, almost until the present day, has been the staple of high-school curricula. Urban and regional concentrations of industrial capital were explained as resulting from the proximity of specific raw materials, natural routes, and the like, whereas agricultural concentrations of capital resulted from the particular character of the soil, the climate, or the physiography. Thus the Pittsburgh-Youngstown-Cleveland region was seen to result from the proximity of coal and iron ore particularly; the Lancashire cotton region results from the suitable climate, the proximity of ports, and the existing tradition of textile manufacturing due to the rearing of

sheep on the neighboring hillsides; and New York owes its location to its abundance of waterfront space, the deep inland penetration of the Hudson-Mohawk river system, and its granite bedrock suitable for the construction of large wharves. Hence also, the agricultural geography of the United States is explained in terms of a "cotton belt," a "hog belt," a "spring wheat belt," a "cattle belt," the fruit-growing areas of California, Florida, and the Pacific northwest, and so on. And the trade between these areas was naturally explained according to the surpluses of the specific commodities produced in each region.

This type of explanation was often taken one step further, and applied not just to the economic differentiation between regions but also to the political differentiation between nations. Thus geographers and not a few historians were wont to explain Britain's imperial hegemony in the nineteenth century as a result of its massive sea power which was in turn due to its being an island nation with no alternative but to turn to the sea. Hence Sir Halford J. Mackinder, father of the new nineteenth-century school of British geography, and Member of Parliament, writing in 1919:

> The great wars of history . . . are the outcome, direct or indirect, of the unequal growth of nations, and that unequal growth is not wholly due to the greater genius and energy of some nations as compared with others; in large measure it is the result of the uneven distribution of fertility and strategical opportunity upon the face of the globe. In other words, there is in nature no such thing as equality of opportunity for the nations. Unless I wholly misread the facts of geography, I would go further, and say that the grouping of lands and seas, and of fertility and natural pathways, is such as to lend itself to the growth of empires, and in the end of a single world-empire.[9]

All of this due to nature!

The commercial geography upon which this political geography was based was itself based on very clear principles concerning the way in which natural advantage dictated the territorial division of labor. These principles were perfectly expressed in the definitive work on the subject,

George Chisholm's *Handbook of Commercial Geography*, which was first published in 1889:

> The great geographical fact upon which commerce depends is that different parts of the world yield different products, or furnish the same products under unequally favourable conditions. . . . If there is any permanent benefit to mankind at large (from rapid economic development and concommittent social disturbances) the full advantage of this nature is not reaped until every kind of production is carried on in the place that has the greatest natural advantage for the supply of a particular market. By natural advantages are meant such as these—a favourable soil and climate, the existence of facilities for communication external and internal as far as these lie in the nature of the surface and physical features, the existence of valuable minerals in favourable situations, and especially of the materials for making and driving machinery, these being the products which are least able to bear the cost of carriage. All these advantages are more or less permanent. . . . With natural advantage may be contrasted historical advantages, which are in their nature more temporary, though they are often in fact of long continuance. Perhaps the most important of all is a strong and stable government based on just and fixed principles not hostile to industry. . . . The commerce and industry of the world have for more than a hundred years been in a transition stage the like of which has never been known before. Communications are being improved, the means of production are being accelerated and cheapened, uncultivated lands are being settled, and primitive peoples introduced to the inventions of the white races with a rapidity hitherto unparalleled—with incidental results, as we have seen, not always the most desirable. Commerce and industry thus tend to be governed more and more by geographical conditions. . . . The opening up of the entire world by improved means of communication is leading capitalists to search out every part where development is possible and to remove obstacles to development wherever that can be done, but the very fact that man is acquiring great power in dealing with nature makes clear the limit beyond which he cannot pass in his modifications of the original conditions. . . . The tendency of which we are now speaking toward an ultimate

> prevalence of geographical conditions in determining the distribution of commerce and industry is, it is true, a tendency toward a remote result.[10]

Today's geographers no longer have such confidence in the world-historic importance of their discipline, or in its destiny. Just as commercial geography and Mackinder's kind of political geography were means of understanding and promoting the rise of empire, so their fate followed the fate of empire. The demise of the British empire brought about the demise of this geography. The commercial and regional geography referred to above no longer occupies a central place in the discipline, but has been superseded by a more abstract concern for space, ushered in by the so-called quantitative and relevance revolutions of the 1960s and 1970s. What then of the claim that there is a tendency toward the ultimate prevalence of natural geographic conditions in determining the distribution of commerce and industry?

The principle of natural advantage, adhered to by traditional commercial and regional geographers, claims to explain more than it in fact does. In the end, such explanations of the concentration and centralization of economic activity are only half-truths. They may, and usually do, explain adequately the fact of initial development in a certain place but by no means explain the quantity or quality of subsequent development. The present reality of New York City, such an impressive symbol of the productiveness of human activity, has long since outgrown any naturalistic explanation based on bedrock or physical accessibility. With the development of the productive forces under capitalism, the logic behind geographic location retreats more and more from such natural considerations. The reason for this is twofold. What tied economic development to natural conditions was first the difficulty of overcoming distance, and second the necessity of close proximity to raw materials. With the development of the means of transportation, the first natural obstacle (distance) diminishes in importance. With the general increase in the productive forces, the second also becomes less important, since raw materials today are the product of an ever increasing number of

previous labor processes. One need think only of plastic, a raw material in a broad range of production processes. Ultimately, it originates as petroleum, but goes through a number of different labor processes before emerging as piping, furniture, clothing, or AstroTurf. For all but the first of these labor processes the raw material is an industrial product whose location is determined by the location of the productive forces and not at all by nature. Thus, although the world's petroleum-extraction industry remains totally tied to locations where petroleum is naturally available, the world's petrochemical industry is not similarly constrained, and does not cluster around the world's oilfields. This is a totally different situation from the days of early capitalism when the majority of raw materials were the direct products of agriculture or mining.

The concentration and centralization of capital in the built environment proceeds according to the *social* logic inherent in the process of capital accumulation, and this, we saw previously, leads towards a leveling of natural differences, at least insofar as they determine the location of economic activity. Or as Bukharin has written, in a tone reminiscent of Engels, "Important as the natural differences in the conditions of production may be, they recede more and more into the background compared with differences that are the outcome of the uneven development of productive forces."[11]

Commercial geography was the geography of the age of commercial capital. As such it is no accident that it was further developed in Britain, the center of nineteenth-century commercial capital. The explanations offered by commercial geography are suitable, even insightful, for that age—an age of transition when capitalist economies inherited the geography of the natural economies of feudalism and other pre-capitalist modes of production. The territorial division of labor was indeed strongly influenced by, even rooted in, the natural differentiation of the earth. But with the emergence of capitalism, it is not just the society itself but also society's relation with nature that it revolutionized. The territorial division of labor is increasingly emancipated from its roots in nature and to the extent that it survives is provided with a new material

basis. Certainly, capitalism inherits a territorial division of labor rooted in natural differentiations, and this territorial division survives to a greater or lesser extent, but it survives as a relic subject to the dictates of a new society with a new set of forces tending toward the differentiation of the conditions and levels of development. To the extent that the old territorial division of labor remains, it does so by the good graces of capital.

The treatment of nature in traditional commercial and regional geography offers a further illustration of the ideology of nature discussed in the first chapter. In the hands of these geographers, nature is external and at best interacts with society. Frederick Jackson Turner offers a poetic view of this conception, if one that also illustrates Turner's ambiguous combination of myth and reality:

> Thus civilization in America has followed the arteries made by geology, pouring an ever richer tide through them, until at last the slender paths of aboriginal intercourse have been broadened and interwoven into the complex mazes of modern commercial lines; the wilderness has been interpenetrated by lines of civilization ever more numerous.[12]

Whatever the ideological substance of this view, Turner recognizes with us the increased importance of commerce as against geology. For there is a direct contradiction between the emancipation from nature—or the stronger thesis of the production of nature—and the expectations of Chisholm, Stamp, and others that natural features would become increasingly important in explaining the distribution of industry and commerce. Nonetheless, this latter expectation was not entirely without a real basis. In fact it embodies a real truth that geographers have not yet disentangled from the discarded baggage of a historically obsolete geography. Actually, it is not the physical geography as such that grows in importance but, as was suggested in the previous chapter, it is the strictly spatial dimension of geography that grows in importance with the inexorable progress of capitalist development. And this spatial geography is socially produced, no longer a received natural pattern. Thus it

is no accident that since the quantitative/relevance "revolution" in geography, the discipline seems to have hatched a dual personality with the spatial analysis of environment increasingly separating itself from the consideration of human-environmental relations—space on one side, environment (physical and/or human) on the other. It is the societal mode of production which binds space and nature together into a single landscape.

DIFFERENTIATION AND THE DIVISION OF LABOR

The differentiation of geographical space, what we have so far called the territorial division of labor, emanates from the more general societal division of labor. But the question of the division of labor is about as complex as it is neglected, and so when we attempt to place the territorial division of labor into this more general framework, a further weave of complexity is added. We shall attempt to disentangle the separate threads in several stages. Marx made only passing reference to the territorial division of labor but attempted a more systematic discussion of the societal division of labor, and so it is there that we begin.

Particularly in his earlier writing, Marx traced the development of the division from its roots in nature up to the complex division experienced under capitalism. In *Capital* he distinguished between three separate scales at which the division of labor took place. He distinguished between the *general* division of labor (the division between major activities such as industry and agriculture), the division of labor in *particular* (the various subdivisions between different sectors of these general divisions), and the *detail* division of labor that takes place in the workshop between different detailed work processes. This distinction between different scales at which the division of labor occurs is not merely a philosophical distinction, but one brought into existence by the development of the specifically capitalist form of manufacturing. In particular, the systematic detail division of labor within the workshop, and its distinction from the division of labor at higher scales, is the exclusive product of capitalism.[13]

But the division of labor is not the only source of social differentiation Marx identifies. Among the others he discusses, the most important here are those pertaining to the division of capital. Thus he divides the economy into two departments—one devoted to producing means of production and the other producing means of subsistence—in order to examine the reproduction of capital. Further, he makes a crude distinction between individual capitals, because without such a distinction capitalist competition is incomprehensible. How important are these sources of differentiation, and how are they related to the division of labor?

Although there has been considerable interest in the advancing detail division of labor in recent years, and in the division of labor between the production of surplus value and the reproduction of labor power, there has been virtually no work done on the division of capital and its relationship to the division of labor. Without offering a definitive justification here, I would like to suggest a tripartite division of capital which parallels and in part coincides with the tripartite division of capital offered by Marx. Thus we can divide an economy into three scales: the division of capital into *departments*; the division of capital into *sectors*; and the division of capital into *individual* units of property employed as capital.

1. Departments of the economy are differentiated from each other at the scale of the general division of labor identified by Marx. Although Marx himself did not make this relationship explicit, it fits well with his intent in identifying the general division of labor. Departments are differentiated from each other according to the use-value of their products, specifically their use-value in the process of the reproduction of capital. Thus Marx distinguishes between Department I in which the means of production (fixed capital and circulating capital) are produced and Department II in which articles of individual consumption (necessities and luxuries) are produced. Marx employed this distinction in order to demonstrate the possibility of the sustained reproduction of capital, not at all as a definitive division of the economy. This has led others to add fur-

ther departments, specifically a Department III which produces articles for collective, non-productive consumption, such as military hardware.[14] Other divisions might be possible if the intent is a definitive classification of the economy into departments. This was not Marx's intention nor is it ours here; it suffices at present to identify the level at which the economy is divided into departments.

2. Different sectors of the economy are traditionally defined by the immediate use-value of their product, for example, automobiles, construction, steel, electronics, education, and so on. The distinction between sectors coincides entirely with Marx's division of labor in particular. Although the use-value of the product appears to be the criterion upon which different sectors are divided from each other, this is only a partial truth. The internal coherence of a specific sector and thereby the sector itself is increasingly defined by the equalization of the profit rate internally as compared to productive activities in other sectors. This is brought about through direct market competition which, of course, takes place only to the extent that competing use-values are comparable, thus lending credibility to the superficial observation that sectors are defined according to the similarity of the use-values they produce. The differentiation of sectors from each other is never complete, of course, and overlaps occur. This is particularly true in the production of large composite products such as steel mills or airplanes. To what extent is the builder of a modern automated, computer-programmed blast furnace or Boeing 747 operating in the electronics or computer sector rather than the construction and aerospace sectors respectively? And just as certainly there are external overlaps in that sectors do not tend to fit easily and exclusively under one department. The auto industry, for example, produces in all three departments. It produces trucks for productive consumption, cars for individual consumption, and tanks for war.

3. The differentiation of the social capital into individual units is not in any way a function of the division of labor, although the detail division of labor tends to operate from day to day at the level of the individual capital. Rather, the differentiation of individual capitals is

historically imposed on the accumulating social capital by the system of property relations expressed and constituted through the predominating legal system. With the origins of capitalism, individual capitals did tend to be synonymous with particular divisions of the labor process. The individual capitalist would be a farmer, a carpenter, a textile manufacturer. But with the necessary concentration and centralization of capital implied in the accumulation process, the scale of individual capitals has grown tremendously. Today, many small capitals may remain confined to one particular division of the labor process, but in the age of portfolio investments, this is true of a smaller and smaller portion of the total social capital. DuPont no longer simply makes chemicals; it mines coal and oil, operates hotels, runs a retail chain, and buys and sells real estate. Just as at the scale of different sectors of capital, so at the scale of individual capitals there is considerable overlap, but at the latter scale this is manifested not through a mixing of different activities but rather through an overlap of legal control, according to mutually intertwining stock ownership.[15]

If the division of labor and the division of capital are folded together, we are left with four identifiable scales at which the social differentiation process takes place:

(a) the *general* societal division of labor (and capital) into different departments;
(b) the division of labor (and capital) in *particular* different sectors;
(c) the division of the social capital between different *individual capitals*;
(d) the *detail* division of labor within the workplace.

These different divisions of labor are not equally important in determining the geographical differentiation of the landscape, and the task now is to assess their importance. We begin with the *detail* division of labor.

The *detail* division of labor appears with the organization of handcraft activities into manufacturing where in the beginning it exists as an independent social force: "In those branches of industry in which the machinery system is first introduced," Marx wrote,

> Manufacture itself furnishes, in a general way, the natural basis for the division, and consequent organisation of the process of production. . . . In Manufacture the isolation of each detail process is a condition imposed by the nature of division of labour, but in the fully developed factory the continuity of those processes is, on the contrary, imperative. . . . Modern Industry has a productive organism that is purely objective, in which the labourer becomes a mere appendage to an already existing material condition of production.

The detail division of labor then becomes a "technical necessity dictated by the instrument of labor itself."[16] That is, the development of the detail division of labor as such is replaced as the central determinant of the differentiation of the labor process. Differentiation at this scale is increasingly the product of the technical development of the instruments of production themselves.

As such, and although it is fundamental in other ways, the detail division of labor contributes very little to the social differentiation that in turn leads to uneven development. This is predominantly a matter of spatial scale. The detail division of labor occurs at the scale of the individual factory and at the most affects geographical differentiations at the intra-urban scale. Indirectly, however, the advance of the detail division of labor may have a more widespread effect. The introduction of new technologies may well be responsible at least in part for the differentiation of space at the inter-urban, regional, or even international scales. One need only think of the development of Silicon Valley in California, or the Sinchu suburb of Taipei, or of the importance of the aerospace industry or the more modern military technologies in the development of the so-called Sunbelt. But in these cases, although new technologies are certainly involved, it is not the development of the machinery per se but its effect at a larger scale (that of the particular or general division of labor) that is responsible for the resultant spatial differentiation. The detail division of labor leads to spatial differentiation only insofar as it also involves a development in the particular or *general* divisions of labor.

At the scale of the general division of labor, capitalism is historically founded upon the division between industry and agriculture. Although this division is superseded with the development of capitalism it is historically important and receives its direct spatial expression in the separation of town and country. "The foundation of every division of labour that is well developed, and brought about by the exchange of commodities, is the separation between town and country. It may be said, that the whole economic history of society is summed up in the movement of this antithesis."[17] So wrote Marx with considerable insight concerning the necessary spatial content of the division of labor. This passage is widely and sometimes indiscriminately quoted, often by geographers groping for a handle on how to fit space into Marx's theoretical analyses. But unless it is critically understood, this passage can be misleading. The separation of town and country is both the logical and historical *foundation* of the contemporary social division of labor in the following sense: only when the proletariat was free from the need and responsibility of producing their own means of subsistence could this social division of labor progress as it did. The separation of town and country does not originate with capitalism, but is on the contrary inherited by early capitalism. Only with the freedom of the agricultural peasants from the land, however, and with their migration to the city, is a final separation cleft between town and country. The separation of town and country is itself a product of the social division of labor, but it proceeds to become the foundation, as Marx said, for the further division of labor.

It should hardly be surprising, therefore, that precisely this further division of labor has eroded its own foundation—the separation of town and country. The urbanization of the countryside, through the industrialization of agriculture, is today an overwhelming reality and one which Marx foresaw. "The history of classical antiquity," he said, "is the history of cities, but of cities founded on landed property and on agriculture . . . the Middle Ages (Germanic period) begins with the land as the seat of history, whose further development then moves forward in the contradiction between town and countryside; the modern [age] is

the urbanization of the countryside, not the ruralization of the city as in antiquity."[18] The separation of town and country today still occurs in some form but should be seen as a relic from the origins of capitalism. To speak of it today as still central to the determination of the general division of labor, as is all too commonly done, is to read Marx uncritically and to fossilize the rural-urban dichotomy. Strictly defended, this dichotomy is a derivative of the larger ideological dualism of nature versus society—the machine versus the garden.[19]

The urbanization of the countryside does not invalidate Marx's claim that the history of society is "summed up" in the movement of the antithesis between town and country. On the contrary, it confirms it. But one must be prepared to follow the historical movement of this antithesis to the point of recognizing its *Aufhebung* or suspension. This is a case where the tendency toward equalization inherent in capital has won out over the differentiation of space. But in the process, as we shall see below, capitalism digs its own grave. To the extent that capitalist development levels the urban-rural dichotomy and thereby destroys the foundation for its own economic history, it prepares the way not only for its own defeat but for the development of a wholly new economic history built on a new foundation. Very accurately does the movement of this antithesis sum up the economic history of society.

Like the detail division of labor, the general division of labor is not a fundamental determinant of the pattern of spatial differentiation. We have seen this with the separation between town and country, and it is necessary now to show the same as regards the division of the economy into departments which supersedes the division between industry and agriculture. The distinction between the three departments identified above takes place at such a large scale, economically, that we would expect any spatial correlate to occur at a similarly large scale. Only in an accidental rather than systematic way could the differentiation between departments be responsible for spatial differentiation at the intra-urban scale.[20] At the scale of the world economy, the selective concentration of departments has been of considerable importance. The clearest example

of this was to be found in the specialization in early colonial economies whose major function was the production of raw materials for the European colonizer. The underdevelopment of Africa, Asia, and South America was built on the export from these continents of raw materials for use in Western Europe and later in North America. Marx offers a vivid description of this process in action, noting how it was integrally related to the development of machinery in the European industrializing economies:

> On the one hand, the immediate effect of machinery is to increase the supply of raw material in the same way, for example, as the cotton gin augmented the production of cotton. On the other hand, the cheapness of the articles produced by machinery, and the improved means of transport and communication furnish the weapons for conquering foreign markets. By ruining handicraft production in other countries, machinery forcibly converts them into fields for the supply of its raw material. In this way East India was compelled to produce cotton, wool, hemp, jute, and indigo for Great Britain. By constantly making a part of the hands "supernumerary," modern industry, in all countries where it has taken root, gives a spur to emigration and to the colonisation of foreign lands, which are thereby converted into settlements for growing the raw material of the mother country; just as Australia, for example, was converted into a colony for growing wool. A new and international division of labour, a division suited to the requirements of the chief centres of modern industry springs up, and converts one part of the globe into a chiefly agricultural field of production, for supplying the other part which remains a chiefly industrial field.[21]

The impetus for this global specialization in Department I activities is social; there is nothing "natural" about the destruction of competing machinery. But in operation, this social specialization did base itself on the natural differentiation of the earth's surface. But this crude division of the underdeveloped world from the developed on the basis that the former supplies raw materials to the latter is no longer accurate. With the continued emancipation of social production from the dictates

of nature, the natural patterns of differentiation are rendered increasingly impotent in directing the spatial differentiation of the different economic departments of production. As raw materials become increasingly the product of numerous previous labor processes, as we saw in the case of plastics, the underdeveloped nations have become less and less tied to the exclusive production of raw materials, and have experienced considerable industrial development in some areas.[22] The differentiation between departments of the world economy is an insufficient explanation for the division between the developed and underdeveloped world.

Among underdevelopment theorists today, Samir Amin probably comes closest to differentiating the underdeveloped world from the developed world according to the differentiation between departments. For Amin, peripheral capitalism has a quite different structure from central capitalism. Whereas central capitalism experiences self-centered accumulation, peripheral "social formations" experience an inherently unbalanced structure of development. In the center, development revolves around the production of "capital goods" and the encouragement of mass consumption; in the periphery, however, it is production for export and the consumption of luxury goods that form the basis of the economy, and this is an inherently unbalanced structure (figure 1).[23] Although Amin is concerned in part with the distinction between different departments these distinctions are not consistently at the base of his explanation of underdevelopment. He is well aware that the underdeveloped world is no longer simply or even predominantly defined by its export of raw materials, and that considerable industrialization has taken place in the underdeveloped world. But this is industrial production for export, and does nothing to alter the unbalanced economic structure of peripheral capitalism.

Thus production for export, *regardless* of the department in which this takes place, is of key importance for Amin's analysis. Consequently, even for Amin, it is not the differentiation into departments that is at the root of the differentiation between developed and underdeveloped

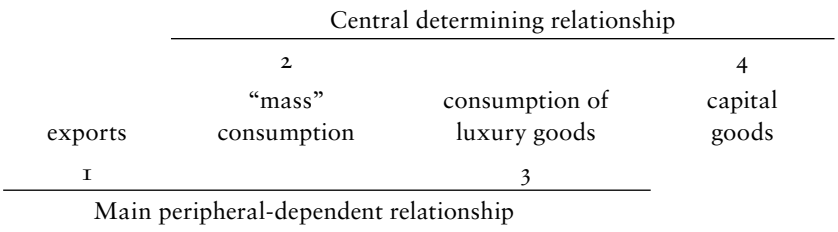

FIGURE 1 Amin's model of central and peripheral development

nations. To the extent that a differentiation between departments does have a spatial dimension—and it is undeniable that productive activity in all four of Amin's departments is concentrated in the developed world—this pattern is a product of some prior spatial differentiation, the explanation for which must be found elsewhere.

This leaves us with the two remaining scales at which social differentiation takes place, and it is these that are responsible in the first instance for the geographical differentiation of the capitalist world. At the scale of *individual capitals*, the differentiation process is quite direct; capital is concentrated and centralized in some places at the expense of others. At the scale of the *particular* division of labor—the division of the economy into specific sectors—the differentiation of geographical space is less direct. It occurs in a cyclical manner according to the equalization of the profit rate within a given sector, and the resulting movement of capital between sectors, from those with a low rate of profit toward those with a higher rate of profit. This movement of capital between sectors takes on a spatial dimension due to its timing; insofar as those sectors attracting quantities of capital are relatively young in the economy, their rapid expansion generally coincides with some kind of geographical expansion or relocation in order to supply the space for burgeoning productive facilities. And the corollary also holds. Insofar as sectors systematically losing large quantities of capital are old and established, perhaps even outmoded, and insofar as they therefore tend to have been clustered relatively closely in the landscape, then whole areas will tend to experience

a systematic and uncompensated devalorization of fixed capital located there. The devalorization of capital, and ultimately its general devaluation, are place-specific.[24]

In sections III and IV we shall examine in greater detail the spatial translation of the particular division of labor and the division between individual capitals. For the present, we turn to the opposite tendency, that toward equalization.

II. The Tendency Toward Equalization

We saw in the last chapter the "universalizing tendency of capital," and noted the contradictory geographical results of this process. On the one hand, geographical space is produced at the world scale as relative space, and on the other hand there is an internal differentiation of geographical space into distinct absolute spaces, at different scales. We have looked at the origins of the tendency toward differentiation but have now to consider more concretely what it means that global space is produced as relative space. Where Marx touches on this issue he does so, typically, in the context of the circulation process. More than with production, Marx emphasizes that "circulation proceeds in space and time." Indeed he devotes a short section in *Grundrisse* to this issue. And in the *Manifesto*, he and Engels observe that the "need of a constantly expanding market for its products chases the bourgeoisie over the whole surface of the globe. It must nestle everywhere, settle everywhere, establish connections every where."[25] But in *Capital* Marx also notes more generally, if rather cryptically, that "capital is by nature a leveller"; this generalization is provoked by the observation that capital "exacts in every sphere of production equality in the conditions of the exploitation of labour."[26] Inherent in the global production of relative space, therefore, is a tendency toward the equalization of the conditions of production and of the level of development of the productive forces. This annihilation of space by time is the ultimate if never fully realized result of this tendency. In constant opposition to the tendency toward differentiation, this tendency toward equalization, and the resulting contradiction, are the more

concrete determinants of uneven development. This contradiction is resolved historically in the concrete pattern of uneven development, but before taking up this issue, we shall examine the source, in the sphere of social production, of the tendency toward equalization.

We have already seen some of the geographical expressions of this tendential equalization in the leveling of the urban-rural dichotomy and in the transformations of nature into a universal means of production. At its most general, the equalization of conditions of production—meaning its use-value as well as its exchange-value features—results from the universalization of abstract labor in the form of value. Its origins coincide precisely with the origins of differentiation. The accumulation of capital progresses not simply through the development of the division of labor but by the leveling of pre-capitalist modes of production to the plain of capital. The advanced division of labor is possible only to the extent that capital conquers the mode of production.[27] The universalization of the wage-labor relation portends for the laborer a freedom given with one hand—the freedom to buy and sell his or her labor power—but taken away with the other. As Marx observed, and as was emphasized in the earlier discussion of the production of nature, the individual worker is transformed into a "crippled monstrosity"; the "Juggernaut of capital," to use Marx's phrase, drags workers down to a common level, and as far as the individual is concerned makes a "speciality of the absence of all development." Human nature is leveled downward.

A parallel degradation results from the capitalist pursuit of raw materials. In quantitative terms, the equalization process is manifested in the common scarcity of objects of labor. From wood to whales to petroleum, the presumed scarcity of these materials is a social creation, not an act of nature. According to Harvey, "this scarcity is socially organized in order to permit the market to function."[28] In qualitative terms, capital engages in a frantic search for the materials—old and new—which fuel the accumulation process. Thus Marx concludes that

> all progress in capitalistic agriculture is a progress in the art, not only of robbing the labourer, but of robbing the soil; all progress in increasing the fertil-

> ity of the soil for a given time, is a progress toward ruining the lasting sources of that fertility. . . . Capitalist production, therefore, develops . . . only by sapping the original sources of all wealth—the soil and the labourer.[29]

This applies not just to the soil but to the mineral, animal, and vegetable resources of the earth. These issues have already been discussed in greater detail in chapter 2. In two general senses, the production of nature brings about an equalization in the relation with nature: first, nature is made the universal appendage of capital; second, the quality of nature is leveled downward at the hands of capital. We shall not pursue this general point here but shall turn to the issue of fixed capital which is particularly important as regards the tendency toward equalization.

To the extent that capital accumulation depends upon the production and reinvestment of relative surplus value, the development and improvement of "technology" is vital. As fixed capital in the production process, technology is both the vehicle for the expansion of capital and also the impetus for such development. Competition is the social flux which generalizes the necessity of innovation throughout the economy. Assuming similar labor conditions, new techniques adopted by one capital must be equaled or bettered by other capitals in the same sector if they are to survive in the marketplace. Further, this increased productiveness of labor in one sector creates both the possibility and the necessity for increased productivity in others. The possibility arises in that an innovation in one sphere is likely to find applicability in another. The necessity arises because an advance in one sector may require advances in those sectors to which it is closely related. Marx gives the example of the mechanization of spinning which "made weaving by machinery a necessity, and both together made the mechanical and chemical revolution that took place in bleaching, printing, and dying imperative."[30] More recent examples might include the industrialization of agriculture in order to maintain the supply of raw materials to a rapidly expanding industrial sector, or the development of the computer industry which spawned a variety of revolutions in microelectronics. With the development of means of communication and transportation, the barriers to the geographical

generalization of new technologies are diminished. To the extent that this generalization is achieved, the tendency toward the equalization of conditions and levels of production is realized.

Capital assigns massive resources to facilitate the development and application of new technology, especially in support of science. "The full development of capital . . . takes place," according to Marx, when "the entire production process appears as not subsumed under the direct skilfullness of the worker but rather as the technological application of science." With the enhanced role of fixed capital, massive new industrial sectors are required for the research, design, and development of appropriate instruments of production. Science itself becomes a business, the business of developing the necessary forms of fixed capital.

> The accumulation of knowledge and of skill, of the general productive forces of the social brain, is thus absorbed into capital, as opposed to labour, and hence appears as an attribute of capital, and more specifically of *fixed capital*. . . . *Machinery* appears, then, as the most adequate form of *fixed capital*, and fixed capital, in so far as capital's relations with itself are concerned, appears as *the most adequate form of capital* as such.[31]

As fixed capital moves toward center stage, the relativity of space is increasingly determined by the geographical patterns of investment in fixed capital. The relationship between the generalization of new technologies and the tendency toward equalization is thereby intensified; the economic forms are translated more directly into their geographical form. Now although the impetus behind the equalization process springs directly from the sphere of production, the new sectors of research, design, and development begin to operate independently toward the equalization of conditions and levels of development. This is particularly evident in the case of science: the "development of fixed capital indicates to what degree general social knowledge has become *a direct force of production*, and to what degree, hence, the conditions of the process of social life itself have come under the control of the general intellect and been transformed in accordance with it."[32]

Marx carries his argument concerning science and fixed capital to its logical conclusion, which is an equalization of a wholly different sort. For the increasing centrality of fixed capital is inherently contradictory. Capital posits labor as the sole source of value, and yet in its increased dependence upon fixed capital, capital itself depletes the basis of its own survival. "The increase of the productive force of labour," Marx says, "and the greatest possible negation of necessary labour is the necessary tendency of capital." For as

> soon as labour in the direct form has ceased to be the great well-spring of wealth, labour time ceases and must cease to be its measure, and hence exchange value [must cease to be the measure] of use value. The *surplus labour of the mass* has ceased to be the condition of general wealth. . . . With that, production based on exchange value breaks down, and the direct, material production process is stripped of the form of penury and antithesis.[33]

The logic of capital expansion leads not just to the universal subjugation of all human societies and of the entire earth to the rule of capital; it does so only by generalizing within capital the absolute rule of fixed capital.

Realized to the hilt, the geographical equivalent—or rather, prerequisite—of this banishment of penury and antithesis is the complete leveling of spatial differences and the instigation of even development. Depending particularly on these passages from *Grundrisse*, theorists from the Frankfurt School have elaborated upon Marx's notion that "the conditions of the process of social life itself have come under the control of the general intellect and been transformed in accordance with it." The most articulate and probably the best known has been Herbert Marcuse, who attempted to demonstrate that not just in production but throughout society—in the cultural, psychological, philosophical, and political realms—the hegemony of science, inexorably linked to technology, has led to new and near-universal structures of social control. The result is adequately captured in the title of the book where he most forcefully advances this thesis: *One Dimensional Man*. There he documents the

simultaneous equalization and degradation of all realms of human experience to a lowest common denominator, one established by the very structure and process of scientific discourse. The spatial correlate, to which Marcuse only alludes, but which is more explicitly discussed in the social science literature and lamented in newspaper travel columns, is a one-dimensional geography. The equalization of geographical differences and the shrinking of world space emerge together; the more accessible foreign parts become, the more similar they seem to home. This is not just a case of the old cliché that familiarity breeds contempt. Regardless of its social expression this geographical one-dimensionality has a real historical basis in the equalization of the conditions and levels of production. The lowest common denominator, in a geographical sense, is not just the spacelessness implied by an equivalence of wages or of prices, but the ubiquitous degradation of landscape.[34] Spacelessness here is the obverse of utopia.

Marcuse admirably captures the increased centrality of fixed capital, and therefore of science, depicted by Marx and understands also the tendency for science to spread its domain outward from the production process. As such he understands at least one facet of the tendency toward the equalization of social conditions brought on by the expansion of capital. But his pessimistic conclusion of one-dimensionality is premature. Where Marx is discussing the victory of automation and of technological dominance, he does so not as a description of an accomplished reality or even a reality that could be achieved under capitalism. Yet this is exactly how Marcuse seems to read Marx. If not yet accomplished in Marx's time, automation of the mind as well as the economy, the growing irrelevance of class struggle and the demise of the labor theory of value are today, for Marcuse, an accomplished reality. Yet even in the same passage, Marx was clear that under the actual conditions of capitalism it is "absurd" to "make fixed capital into an independent source of value, independent of labour time."[35] In fact Marx was not describing any reality at all in this well-known passage from *Grundrisse* but rather spinning out the logical destination of the development of fixed capital.

Not surprisingly, the destination for Marx was not "one dimensional man" under an impregnable and barbarian capitalism; rather it was socialism. The state where labor time is no longer the measure of value, where the surplus labor of the masses is no longer the condition for the development of the social wealth, where social life is under the direct control of the intellect, and where the production process is stripped of the form of penury and antithesis—all this is none other than Marx's vision of socialism, and furthermore one of his most explicit statements of that vision. What he in fact demonstrates here is the way in which the development of one form of capital implants the seed of socialism within the womb of capitalism. The equalization process reaches a new high.

Like the tendency toward differentiation, the tendency toward equalization is inherent in capital. It is expressed most clearly in the world market and in the circulation process, because the individual act of exchange is one of creating a social equivalence. It is in the sphere of circulation that the annihilation of space by time strives to be realized. Yet what is realized in circulation usually emanates from production, and this is the case with the tendency toward equalization. The equalization of the conditions and level of production is as much a product of the universalization of abstract labor as the tendency toward differentiation. Dazzled by the former, Marcuse fails to appreciate the latter. Yet it is together that these opposite tendencies produce a historically specific geography.

III. The Accumulation, Concentration, and Centralization of Capital

We have already seen that the necessity of capital accumulation leads to a frantic geographical expansion of capitalist society, led by productive capital. This requires a continuous investment of capital in the creation of a built environment for production. Roads, railways, factories, fields, workshops, warehouses, wharves, sewers, canals, power stations, dumps for industrial waste—the list is endless. These and myriad other facilities are the geographically immobilized forms of fixed capital, so

central to the progress of accumulation. The location of this capital is a complex concern; different issues and economic relationships differ in importance whether we examine the individual capital or the accumulation process in aggregate. Based on the microeconomic theory of the firm, bourgeois location theory begins with the individual decision and attempts to generalize from this to the level of the overall space economy. Marxist theory, however, begins from the integration of micro and macro scales: individual capitals confront a set of constraints, limitations, and conditions set by the structure and development of the larger economy, while the rules of the larger economy are an outgrowth of the class and competitive relations pertaining at the level of every individual capital. It should not be surprising, then, that the strong geographical conclusions that emerge from Marx's "general law of capitalist accumulation" connect directly with the differentiation of space at the scale of individual capitals. The common thread is the concentration and centralization of capital and it is with this issue that we begin.

In the first place we must distinguish between the social and the spatial concentration and centralization of capital. When Marx talks about it, he generally means the *social* process according to which individual units of capital come to control larger and larger quantities of capital. The spatial concentration and centralization process refers to physical location of capital and is thereby different from social concentration and centralization. We shall proceed from the social to the spatial, and in the process explain the difference between concentration and centralization.

Marx insisted that primitive accumulation is already (social) concentration of capital in the hands of individual capitalists; in fact it is the earliest *concentration* of capital *as* productive capital (as opposed to merchant capital). Thus he remarks that "a greater number of labourers working together, at the same time, in one place . . . in order to produce the same sort of commodity under the mastership of one capitalist, constitutes, both historically and logically, the starting point of capitalist production."[36] The initial concentration of capital in a number of hands

provides the means for a more advanced division of labor, the production of a larger quantity of surplus product by each capital and therefore a further concentration of capital through accumulation. This is concentration proper, where each capital grows by reinvesting increasing quantities of surplus value as capital.

Indeed, the social concentration of capital is a necessity of accumulation as much as a premise for it. With the drive for relative surplus value, individual capitals are compelled to reinvest increasing quantities of surplus value in the purchase of larger and larger scale machinery and other means of production, and this requires a continued concentration of capital to facilitate the expanded scale of production. Now in proportion as the concentration of capital facilitates the advancement of the division of labor, capital must also find the means to recombine what is ever being divided. And as ever, capital turns necessity into advantage. Thus capital takes advantage of the social powers of *cooperation* inherent in the laborer and uses them not only to execute a technical recombination of labor in the workplace, but simultaneously to reduce the costs of production and make possible a variety of production processes which, without cooperation, would be impossible. Where a large number of workers are able to work side by side, due to the concentration of capital and the appropriation of the workers' powers of cooperation, the capitalist no longer simply sets to work a number of laboring individuals, but rather the *collective laborer* whose productive power exceeds that of the sum of the individual laborers. The construction of railroads, Marx says, depends fundamentally upon the cooperation of large numbers of laborers in different locations.[37] Today, with electronic and satellite communications and with computer technology, cross-spatial cooperation and the constitution of a geographically dispersed collective laborer are of vital importance.

Although cooperation "originates from the social nature of labour," it appears under capital as its opposite: the power of social labor is taken (literally as well as symbolically) as the power of capital. The greater the concentration of capital and with it the development of the productive

forces, the more this appearance seems real. Less and less does the detail division of labor determine the shape of the instruments of production as was the case up to the manufacturing period. Rather, the technical design of the productive system determines the detailed division of labor in the workshop. This leads to a change in the way in which the combination of labor is accomplished. With the production of machines by machines and the complete transformation of the laborer into a mere appendage of the productive forces—with, that is, the real rather than the formal subsumption of labor to capital—simple cooperation is superseded by a more developed form of cooperation. "In simple co-operation . . . the suppression of the isolated, by the collective, workman still appears to be more or less accidental. Machinery [on the other hand] operates only by means of associated labor. Hence the co-operative character of the labor process is, in the latter case, a technical necessity dictated by the instrument of labor itself." In cooperation technically dictated by machinery, capital finds a free source of relative surplus value. The "productive forces resulting from co-operation" in this way are "natural forces of social labour" which capital appropriates gratis for its own.[38]

If capital accumulation leads directly to the concentration of capital in existing units, it leads indirectly but no less inexorably to a far more powerful process—the centralization of capital. The centralization of capital occurs whenever two or more previously independent capitals are combined into a single capital, and this generally occurs directly through a merger or takeover or indirectly through the credit system. The centralization of capital allows for a more rapid expansion in the scale of production (and potentially therefore to a more rapid increase in the productiveness of labor) than could be achieved by simple concentration of capital in existing units.

> The world would still be without railways if it had to wait until accumulation had got a few individual capitals far enough to be adequate for the construction of a railway. Centralization, on the contrary, accomplished this in the

> twinkling of an eye, by means of joint-stock companies. . . . Capital can grow into powerful masses in a single hand because there it has been withdrawn from many individual hands.

As such, the centralization of capital "does not in any way depend upon a positive growth in the magnitude of social capital."[39] Indeed centralization often proceeds faster in association with economic crises, when the social capital is shrinking. Centralization is thus simultaneously the destruction of one capital and the surge in valorization of another.

"Centralization completes the work of accumulation"; it exaggerates the effects and purpose of the concentration of capital. "Capital proper does nothing but bring together the mass of hands and instruments which it finds on hand. It agglomerates them under its command. That is its real stockpiling; the stockpiling of workers, along with their instruments, at particular points." The centralization process is the most effective means for carrying out this stockpiling, and with the continued development of the productive forces, the centralization of capital takes on continually increasing importance. "Today," Marx wrote, "the force of attraction, drawing together individuals, and the tendency toward centralization of capital is even stronger." Marx wrote this, remember, in a period when virtually the only "multinational corporations" were merchant or banking concerns.[40] Now in any single industrial sector, the centralization process would reach its limit when all of the separate capitals were combined as one; in any given economy the limit would be reached when the entire social capital was combined under the auspices of a single capitalist outfit. But as Marx points out, this stage can never be reached. In the first place, "portions of the original capitals disengage themselves and function as new independent capitals." But second, in a process which has become much more important since Marx's time, large centralized capitals divide themselves internally and while they remain under the same control economically, function as semi-autonomous divisions producing in different sectors of the economy, but within a single corporate structure. Thus although the level of centralization increases

with the progress of accumulation, it does so only in the context of a continual contradiction between the social centralization and decentralization of capital. But Marx also had something more ambitious in mind when he concluded that capitalism was incapable of achieving the total centralization of capital. Another solution presents itself when the social relations of production prevent a sufficient decentralization: "Centralization of the means of production and socialization of labour at last reach a point where they become incompatible with their capitalist integument. This integument is burst asunder. The knell of capitalist private property sounds. The expropriators are expropriated."[41]

If social centralization is the centralization of exchange-value in fewer and fewer hands, spatial centralization is the physical centralization of use-values. The social centralization of capital both produces and requires a certain spatial centralization of capital, and at the scale of the individual capital, this provides the primary impetus toward the geographical differentiation of the conditions and levels of production. There is no one-to-one mapping or automatic translation from social to spatial centralization, but to the extent that the former necessitates the latter, the urgency that whips on the social centralization of capital expresses itself in the geographical differentiation associated with the concentration of capital in certain centers of production. How does this translation to spatial centralization take place?

The spatial centralization of capital is mainly a matter of centralized productive capital. Certainly, the spatial centralization of money capital can be considerably enhanced by the centralization of the social capital as a whole, but in itself the spatial centralization of money capital is of little significance. It takes but a few banks and other buildings to house the bank notes, checks, certificates of deposit, gold, IOUs, electronic messages, and so forth, that circulate through the centers of the world financial system. And these buildings and institutions do not in general create new centers, but rather tack themselves on to already existing centers. As regards the centralization of capital, money capital is far more important in the social sphere than in the spatial sphere. But this does

not mean it is unimportant in the spatial sphere. As the most mobile form of capital, and as the social incarnation of value, the geographical movement of money capital can grease the wheels of whatever tendencies (toward equalization *or* differentiation) are thrown up in the process of accumulation. Commodity capital too is important but does not in itself tend to dictate new patterns of centralization. In the first place, commodity capital invested in the landscape is generally invested as productive capital, even if its consumption is not an element of social production. This would apply to a house or an office building. But second, much of the commodity capital built into the landscape tends to cluster round complexes of productive capital. This is the case with urban development under capitalism where a host of services and ancillary activities are attracted by the centralized investment of fixed capital. The few exceptions to this rule are sufficiently exceptional to be referred to as administrative cities. For these as well as for the reasons noted above in relation to fixed capital, it is reasonable to approach the question of spatial centralization as particularly concerning productive capital. The one main exception to this rule will be treated specifically below.

In the first place we know that the development of the productive forces brings about an increase in the scale of the production process itself. The greater the "number of labourers working together, at the same time, in one place," the larger is the mass of instruments and materials employed in the production of surplus value, and the larger is the spatial scale of the production process. With the continuous division of labor, a larger and larger number of work processes have to be clustered together, and even when whole sections of the production process are spun off spatially—as, for example, in the separation of auto-assembly units from basic production—the tendency is toward larger and larger plants. Not only internally within a single capital, but externally, this clustering of activities takes place. The more advanced the division of labor, the greater tends to be the number of ancillary services and activities required by a given production process, and the greater is the range of productive capital which can be employed in common, thus

commandeering the powers of geographical cooperation. There is therefore a tendency toward the spatial clustering of capitals in established places of production. There is no great mystery here: the results of internal and external clustering we know from the bourgeois literature as "economies of scale" and "agglomeration economies."[42] Both result from economies in the time and cost of circulation together with the harnessing of the social powers of cooperation, the latter operating through both active labor and the gift of dead labor fossilized in the geographical structure.

Along with the objects and instruments of labor, the accumulation process brings about an unprecedented spatial centralization of the subjects of labor. "The causes which concentrate masses of labour under the command of individual capitalists," Marx said, "are the very same that swell the mass of the invested fixed capital, and auxiliary and raw materials." Where workers are concentrated in one location, the cost of reproduction of labor power is reduced because a number of necessities can be consumed in common. In particular, the necessary journey to work is kept to a minimum, thus keeping wages and hence socially necessary labor to a minimum, and maximizing the period of surplus labor. Accumulation of capital is not just accumulation of the proletariat, as Marx said, but accumulation of the proletariat in certain places of production. Summarizing this overall process, Marx writes: "If we consider the material element of *accumulation*, it means nothing more than that the division of labour requires the concentration of the means of subsistence and means of labour at particular points, whereas formerly those were scattered and dispersed."[43] The effect of capital, then, has been to differentiate previously undifferentiated geographical space.

At the level of individual capitals, the concentration and centralization of capital provide the central impetus toward geographical differentiation. This process operates in different ways at different spatial scales, and we shall pick this up in the next chapter. For the moment, it is necessary to examine the second potential source of differentiation (identified in section II) at the level of the particular division of labor, or the divi-

sion of the economy into sectors. This question must be pursued in the context of the historical rhythm of accumulation.

IV. The Rhythm of Accumulation

The investment of capital in the built environment is synchronized with the more general cyclical rhythm of capital accumulation. We would expect this to be more or less true of any subdivision of capital, but it is of particular importance with respect to capital invested in the built environment because of the prolonged period over which the material body of fixed capital is fossilized in the landscape. At any given moment, there are individual capitals being built into the landscape, capitals at every stage of devalorization (the routine process through which fixed capital surrenders its value piece by piece in production), devalued elements of fixed capital, and abandoned remnants of capital which have been rendered valueless.[44] The historical occurrence of capital in these different states is not accidental and nor, as a result, is its geographical occurrence; the historical rhythm of investment in the built environment forges specific geographical patterns which in turn strongly influence the agenda of capital accumulation. This connection has been noted by a number of authors from Kuznets and Abramowitz to Parry Lewis and Brinley Thomas,[45] but the most systematic attempt to relate the theory of accumulation to the specific geography of capitalism comes from Harvey.

Harvey develops "a cyclical 'model' of investment in the built environment," based both on historical evidence and on Marx's theory of capitalist crisis. In outlining the theory here, I omit the caveats and complexities which Harvey introduces and offer only the barest bones of the model.[46] At the most general level the construction of the built environment for production is strongly associated with the periodicity of "long waves" or Kuznets cycles in the overall expansion of capital. To explain this readily observable result, Harvey suggests that we distinguish between a primary, secondary and tertiary circuit of the economy. The primary circuit is the locus of surplus value production and consumption as

well as reproduction of labor power; the secondary circuit involves the investment of capital specifically in fixed capital and the consumption fund, part of which goes to the formation of the built environment; and the tertiary is the sphere of investment in science, education, technology, social expenditures, and so forth. These circuits are thoroughly integrated and difficult to distinguish absolutely; indeed by the time he completed the *Limits* Harvey dropped the distinction between these circuits in order to emphasize precisely the unity of the process. The central logic, however, remains the same. Marx derived the necessity of crisis at the core of capital accumulation, meaning among other things the onset of over-accumulation both as a condition and as a result of crisis. But crisis in the primary circuit could be staved off temporarily at least by switching capital investments into the secondary and tertiary sectors. The secondary sector and, in particular, the built environment tends to be under-capitalized, Harvey says, because of the large scale of such investments, their long turnover period, and their tendency to be collectively consumed; this leads to a reluctance by individual capitalists to make such investments. This switching of capital into the built environment is facilitated by a number of institutions, particularly the credit system and the state. Harvey illustrates this flood of capital into the built environment in periods immediately preceding crises with historical examples, such as the widespread property boom of 1969–73.

But this is only ever a temporary solution and leads very quickly to over-accumulation in the built environment also, but not until new geographical patterns have been spawned. Nonetheless, over-accumulation results in a massive devaluation of capital, and because of its long turnover period, fixed capital is particularly vulnerable. Quite different from the routine devalorization of fixed capital in the production process, this devaluation represents an absolute destruction of value. As Harvey emphasizes, devaluation is place-specific, and this creates the possibility that whole areas of the built environment undergo a rapid and wide-reaching devaluation. Of the crises that eventually result, Harvey distinguishes three kinds: *partial* crises which are localized (by sector or area)

in their effect, *switching* crises in which capital vacates entire sectors or areas in favor of others, and *global* crises in which the entire capitalist system is to some extent affected. The crisis which has developed overtly from 1973 is a global crisis.

This model represents only a first step in the attempt to relate the development of the built environment to the rhythm of accumulation. But already one can see its applicability to urban development, particularly. Beyond the work of building cycles by the authors referred to above, Isard documents the cyclical nature of investment in means of transportation; Whitehand shows in the context of Glasgow that private and state investment in the built environment take place at different parts of the economic cycle and that this results in alternating rings of private and public development; and Walker demonstrates the same cyclical pattern of growth in the suburbanization process.[47] What is common to all of the studies is that they demonstrate the integral role of the built environment in the rhythm of accumulation and crisis in the capitalist economy.

Marx's most complete analysis of crisis comes in part III, volume 3 of *Capital*.[48] The same historical development of the productive forces which becomes the lever of accumulation also brings about the "gradual growth of constant capital in relation to variable capital"—that is of capital invested in raw materials, machinery, etc., in relation to labor power—and since this shrinks the relative basis from which profit is produced, this "must necessarily lead to *a gradual fall of the general rate of profit*." Because there are inherent developments which countered this necessity, for example an increasing rate of surplus value, Marx emphasizes that the falling rate of profit is only ever a tendency. Beyond the immediate impetus of accumulation, a fall in the rate of profit further "hastens the concentration of capital and its centralization through expropriation of minor capitalists." This gives further impetus to the accumulation process leading ultimately to the over-accumulation of capital. Thus "the fallen rate of profit and over-production of capital originate from the same conditions," and in turn lead to "violent and acute crises,

to sudden and forcible devaluations [*Entwertung*], to the actual stagnation and disruption of the process of reproduction, and thus to a real falling off in reproduction."[49]

Now the argument concerning crises have been summarized here in an overly linear fashion. Crisis is not only the product of an inherent contradiction between the need to develop the productive forces and the conditions under which this must take place; in its concrete development as well as its genesis, economic crisis is also inherently contradictory. We need to look at some of the contradictory results of crisis, for no matter how disruptive and dysfunctional, crises can also be acutely functional for capital. The mergers, takeovers, and bankruptcies as well as general devaluation (of commodities, labor power, machinery, money) and destruction of capital (variable as well as constant) that accompany crises also prepare the ground for a new phase of capitalist development. Ultimately, Marx says, "the devaluation [*Entwertung*] of the elements of constant capital would itself tend to raise the rate of profit. The mass of employed constant capital would have increased in relation to variable, but its value could have fallen. The ensuing stagnation of production would have prepared—within capitalistic limits—a subsequent expansion of production." Or as he put it elsewhere, there are "successive periods of depression, medium activity, precipitancy, crisis. . . . But a crisis always forms the starting-point of large new investments."[50] It is in this context, that is, in relation to the restructuring of economies through crisis in preparation for a new phase of expansion, that the particular division of labor has its most pronounced geographical expression. In volume 1 of *Capital*, Marx describes the genesis of new sectors of capitalist industry out of pre-capitalist handicrafts or early manufacturing:

> This first period, during which machinery conquers its field of action, is of decisive importance owing to the extraordinary profits that it helps to produce. These profits not only form a source of accelerated accumulation, but also attract into the favoured sphere of production a large part of the additional social capital that is being constantly created, and is ever on the look-out for new investments.[51]

This description could equally apply to the development of new sectors of industry. Ernest Mandel suggests, for example, that new phases of capital accumulation coming hard on the heels of crisis are driven primarily by technological innovations that were not introduced during the crisis. The result in the early phase of expansion is a number of new industrial sectors in which the rate of profit is very high and which grow very rapidly. Although Mandel seems to go farther and argue a technological determinist explanation of economic cycles, which we do not accept here, the general point is well founded and finds support from a number of quarters.[52] Marx suggested an explanation for this relationship, between new sectors of production and crises, in his discussion of fixed capital. Although different capitals have different turnover periods and are invested at different points, "the cycle of interconnected turnovers embracing a number of years, in which capital is held fast by its fixed constituent part, furnishes a material basis for the periodic crises." It is for this reason, he says, that crisis always forms the starting point of large new investments.[53] Marx does not develop this point further, and it has not been subjected to rigorous empirical verification, but it seems quite reasonable, intuitively. If the turnover time of fixed capital in the form of machinery accounts for the material basis of the shorter five–ten-year cycles in the economy, the turnover of the larger investments in buildings, means of transportation, and other major "improvements" can be viewed as the material basis of the "Kuznets cycles" of eighteen to twenty-five years.

The devaluation of productive capital in the course of crisis and the rapid expansion that follows are place-specific, to use Harvey's phrase. They are place-specific not just at the level of the individual capital where the devaluation or valorization of specific items of fixed capital occurs at a discrete location. Far more important, they are place-specific at the level of whole sectors of the economy. This relationship is suggested in Marx's observation linking the turnover of fixed capital and the periodicity of crisis, and it is realized in practice in the course of crisis, by capital itself. Even when crises emerge sporadically—here a bank, there a steel company, somewhere else a producer of consumer durables, along

with shoals of little capitalists—the crisis develops in the same fashion that capital originally took hold of the pre-capitalist economy, that is, sector by sector. It does this simply as a function of competition. Where devaluation first becomes entrenched, the victims attempt to shove it off in the easiest direction, which means their most direct competitors. This is the import of Harvey's distinction between partial and sectoral crises. Insofar as sectors of the economy are spatially centralized, then, the place-specific character of devaluation translates sectoral crises directly into geographical crises affecting entire regions. The obsolescence of old technologies and the rise of new ones, so vital to capitalism, is simultaneously the transformation of old spatial structures into new ones.

Even as the economy slouches into deeper global crisis—the near-uniform equalization downward of the profit rate—the impact of crisis (the distribution of the social devaluation) remains uneven. "So long as things go well," Marx says, "competition affects an operating fraternity of the capitalist class." Amicably, they divide the world between empires, large and small, then set about business with no small enthusiasm. With only minor skirmishes, "each shares in the common loot in proportion to the size of his respective investment." But with crisis, the sharing of profits gives way to the sharing of losses and each tries to minimize his individual losses. "How much the individual capitalist must bear of the loss, i.e. to what extent he must share it at all, is decided by strength and cunning, and competition then becomes a fight among hostile brothers."[54] Some of these brothers stay to fight for their empires, others pick up and move, but the outcome is the same. The capitalist class as a whole attempts to localize the crisis by writing off some of the smaller brothers and their empires, and these places sustain the most precipitous devaluation. If, as Marx says, "the proportionality of the individual branches of production springs as a continual process from disproportionality,"[55] then the geographical expression of this disproportionality becomes most acute in crisis.

The level to which the capitalist mode of production "has conquered the conditions of production," according to Marx, "is indicated in the

transformation of capital into unmovable property." That is, the extent of the concrete production of space becomes a measure of the universality of capital. This is why Marx declares that fixed capital "appears as the most adequate form of capital."[56] Yet it is clear in the context of crises that precisely because of its immobility, fixed capital is a wholly inadequate form of capital. It is circulating capital, rather, that facilitates the survival of the capitalist class, albeit one which has had "to cannibalize itself."[57] The mobility of circulating capital during bouts of rapid devaluation becomes a means not toward geographical equalization but a differentiation upon which the survival of capital is predicated. Thus Marx is quick to add that circulating capital too is the most adequate form. The resolution of this contradiction is a matter of history.

The post-crisis period of capital accumulation inherits a geographical space that is highly differentiated through crisis. The validity of bourgeois location theory is at best restricted to this period of somewhat idyllic expansion when those of the feuding brothers who survived have returned home, and are again a cozy fraternity. Location theory begins from the assumption of a given differentiated landscape, then examines the location decisions of the individual firms. To the extent that the locational structure—the geography of capitalism—is seen to change historically, this change is treated as the arithmetic summation of these decisions. In this period of expansion, circulating capital merely facilitates the investment in fixed capital which now takes on its historic mission as the lever of accumulation; a new harmonious landscape for production is created. But these idyllic conditions for capital (and for location theory) are only ever temporary. Capital and location theory both are caught up in a historical and geographical flow they cannot explain. But there is another assumption, inherent in location theory, which needs closer attention: the assumption that the summation of individual location decisions tends toward an equilibrium geography, a balanced set of locations. At root this equilibrium is an *equalization of economic differences*, spatially. Ironically, researchers in this tradition are usually quick to renounce the reality of their results, claiming that equilibrium

is only an ideal construct, when in fact there is within capitalism a real tendency toward equilibrium.

In political as well as geographical terms, this question of equilibrium is crucial. Implied in it is the question whether, ultimately, the capitalist mode of production can resolve or otherwise displace its inherent contradictions through some sort of spatial solution, a "spatial fix." This in turn implies the question of scale, and through an examination of these two issues, we shall make the final approach toward deriving a general theory of uneven development.

If this discussion of differentiation and equalization began rather abstractly with an interpretation and extrapolation of Marx's disparate comments and ideas, the focus on crisis and the rhythm of accumulation should have made these ideas somewhat more concrete. The sectoral devaluation of capital in the midst of crisis certainly has an immediate ring to it. The process of deindustrialization, for example, makes sense not just as a devaluation process, but one that is specific to certain sectors and specific to certain regions. We have gone part way, then, toward integrating the fundamental tendencies toward geographical differentiation and equalization, and the division of labor, with the temporal rhythm of capital accumulation. In the next chapter we shall try to complete the journey.

CHAPTER FIVE

Toward a Theory of Uneven Development II

Spatial Scale and the Seesaw of Capital

IF THE DIALECTIC of geographical differentiation and equalization is ultimately responsible for the pattern of uneven development, it does not on its own completely specify the process. Two questions arise: first, why does this dialectic not simply result in a static disparity in levels of development, rather than a dynamic pattern of uneven development? Second, at what scales does this dialectic operate and how are these scales themselves derived? We shall look at these questions in turn. Beginning with the question of spatial equilibrium, we return to Harvey's analysis.

I. The Possibility of Spatial Equilibrium

Locational advantage should be considered like technological innovation as a source of relative surplus value, according to Harvey. Individual capitalists are perpetually driven to adopt the most advantageous locations. Insofar as producers relocate at will, their "excess profit" is purely ephemeral; where they remain for a long period, it is taxed away as ground rent. Assuming equal access to technology, and "spatial competition," therefore, the "rate of profit to capitalist producers will tend to be equalized across locations either through the appropriation of rent or through the geographical mobility of production capital." From this Harvey concludes:

> The aggregate long-run effect on a closed plain is that the search for individual excess profits from location forces the average profit rate closer and closer to zero. This is an extraordinary result. It means that competition for relative locational advantage on a closed plain under conditions of accumulation tends to produce a landscape of production that is antithetical to further accumulation. Individual capitalists, acting in their own self-interest and striving to maximize their profits under the coercive pressures of competition, tend to expand production and shift locations up to the point where the capacity to produce further surplus value disappears. There is, it seems, a spatial version of Marx's falling rate of profit thesis.[1]

Although this model represents a deliberate simplification, it is not unreasonable to conclude from it that while some form of equilibrium may be possible, there is no equilibrium in the sense of an equalized landscape; however much the tendency toward an equalization of profit rates presses, through the mobility of circulating capital, to spatialize itself, it fails. Thus Harvey notes of Losch's spatial equilibrium of hexagonal market networks that it "is a landscape of zero accumulation, totally inconsistent with the capitalist mode of production." Thus "'spatial equilibrium' in the bourgeois sense [equalization] is an impossibility under the social relations of capitalism for deeply structural reasons."

The "closer production equals some spatial equilibrium condition (the equalization of profit rates across locations, for example), the greater the competitive incentive for individual capitalists to disrupt the basis of that equilibrium through technological change." This disturbs and alters "the conditions under which the preceding spatial equilibrium . . . was achieved."[2]

Harvey's general point is that while there is certainly a tendency toward spatial equilibrium (in the sense of equalization), it is continually frustrated by equally powerful forces at the heart of capital (e.g., technological dynamism) which tend toward a continual geographical disequilibrium. But as we saw in the last chapter, specifically in our glimpse of Lenin and Luxemburg, there is a more profound importance to spatial equilibrium. It is not just that capital tends toward creating spatial equilibrium as a geographical mirror image of itself; rather the production of geographical space becomes itself a major way of protecting social and economic equilibrium and of staving off crisis. Marx treated foreign trade, exports, and primitive accumulation in this fashion, and in a simple version involving absolute space, this was also Luxemburg's conception; Lenin's was a more complex version which implicitly acknowledged the relativity of space. Harvey picks up the idea in connection with over-accumulation and asks whether there is a "spatial fix" to the internal contradictions of capitalism. This is what he has in mind when he emphasizes that "space is an active moment" in the overall circulation and accumulation of capital. "Spatial equilibrium" becomes not simply an interesting side effect of capitalist development but an integral necessity, and a measure of the limits to capital.

First, there is no "external" solution. However cathartic they may be in the short run, the export of commodities, of production capital, of laborers, of specie, even of unemployment and devaluation, are only ever temporary solutions which in the long run exacerbate the problem. The more general the crisis becomes, the more difficult it is to export crisis. To the extent that this solution begins to succeed, it digs its own grave. Capital invades pre-capitalist sectors and areas only by capitalizing them

and therefore by creating a new competitor. To the extent that capitalization is prevented, for example through the political mechanisms of colonialism, it fails to convert the colony into a significant reservoir for excess capital. (This, more than benevolence, incidentally, probably accounts for the decline of the British colonial empire.) In already capitalist territories, the export of capital becomes a means of forcing a more rapid decline in the profit rate and hence the generalization of crisis. So is there an "internal" spatial fix?

Here the situation is much more complex, and Harvey devotes much of the last chapter of *Limits* to chewing over some of the complexities of this issue. He concludes that the same instruments which opened up the possibility of expansion and capital accumulation, and which therefore put capital on the path toward crisis in the first place, now stand in the way of any internal spatial solution to crisis. What is required is a complete restructuring of the production process involving a rational devaluation of capital and a controlled reinvestment. But this is impossible given that the existing space-economy is only partly devalorized, and cannot be rationally devalued so long as this capital is privately owned. The anarchy of competition proves to be the Achilles' heel of capital. What was once a dynamic built environment for production, at the cutting edge of expansion, now demonstrates its inertia; sporadic sometimes brutal devaluation takes place, literally, where it cannot be managed rationally. Thus there is no such "instant magic" of a spatial fix, "no 'spatial fix' that can contain the contradictions of capitalism in the long run." The rational logic of accumulation leads to utter irrationality, to war, in which laborer and capital alike are rudely devalued; the "deepening and widening of crises into global configurations transforms the cannibalistic tendencies of capitalism into so many modes of mutually assured destruction."[3] This is the ultimate spatial fix to which capital retreats, when it has to.

Harvey demonstrates forcefully in the final chapters of *Limits* the extent to which geographical space is dragged inexorably into the center

of capital. It is not dragged under the wheels of the Juggernaut so much as put to work in its overheated engine room. When it fails, the vengeance of capital is awesome. In this respect, Harvey's analysis parallels Lefebvre's, but offers a more concrete understanding of the material forces behind the production of space. He also implicitly illustrates a dialectic between geographical equalization and differentiation that lies at the heart of the production of space. This relationship is as evident in Harvey's discussion of the function of war as in Engels's depiction of working-class Manchester.

Engels, recall, observed the following about working-class living quarters in Manchester:

> wherever a nook or corner was free, a house has been run up; where a superfluous passage remained, it has been built up; the value of land rose with the blossoming out of manufacture, and the more it rose, the more madly was the work of building up carried on, without reference to the health or comfort of the inhabitants, with sole reference to the highest possible profit on the principle that *no hole is so bad but that some poor creature must take it who can pay for nothing better.*[4]

Concerning our interest in space, Marx was even more explicit: every "unprejudiced observer sees," he states, "that the greater the centralization of the means of production, the greater is the corresponding heaping together of the labourers, within a given space, that therefore the swifter capitalistic accumulation, the more miserable are the dwellings of the working people."[5] In terms of the argument in chapter 3, it appears that capital differentiates out a specifically urban space which not only provides an absolute space of centralized production, but an equally absolute if more hideous space which, in constraining the mobility of the proletariat, ensures and brings about the downward leveling of nature, in this case human nature. It is precisely the same with the devaluation of capital in war; both are functional for capitalism even if the first is systematic and daily while the second erratic and periodic. With the

destruction of capital through war, massive absolute spaces are created where all of nature—human and otherwise—is leveled.

This dialectic recalls the issue of geographic scale. It was noted in the previous chapter that in order fully to comprehend the uneven development of capitalism, it would be necessary to understand the origin of geographical scales. We tend to take for granted the division of the world into some combination of urban, regional, national, and international scales, but rarely if ever explain how they came about. An understanding of scale gives us a final, crucial window on the uneven development of capital, because it is difficult to comprehend the real meaning of "dispersal," "decentralization," "spatial restructuring," and so forth, without a clear understanding of geographical scale. It will also provide a sharper focus for understanding the tendency toward geographical equilibrium and its ultimate frustration, since spatial equilibrium (or lack of it) implies the production of absolute space at some scale. The issue of scale plays little part in Harvey's exposition, resulting in the misleading impression that while a systematic if inherently contradictory logic guides the capitalist production of space, the product does not reflect the organization of the process. The resulting pattern of uneven development is, to use Richard Walker's term, a "mosaic."[6]

Pre-capitalist geographic space might well be described as a mosaic—a mosaic of exchange spaces (centers and hinterlands), for example, constituted by a well-developed market system. But with the development of capitalism, and with the increased importance of the production of space for the survival of capitalism, the product as well as the process becomes much more systematic. I think it is possible to use the dialectic of differentiation and equalization to derive the actual spatial scales produced by capital, and to show that the result of uneven development is simultaneously more complex and more simple than a mosaic. There is little doubt about the impossibility of a spatial fix for the internal contradictions of capital, but in the doomed attempt to realize this spatial fix, capital achieves a degree of spatial fixity organized into identifiably separate scales of social activity.

II. The Spatial Scales of Capital

Capital inherits a geographical world that is already differentiated into complex spatial patterns. As the landscape falls under the sway of capital (and becomes increasingly functional for it, in the sense referred to in the previous section), these patterns are grouped into an increasingly systematic hierarchy of spatial scales. Three primary scales emerge with the production of space under capitalism: urban space, the scale of the nation-state, and global space.[7] In different degrees, each of these discrete scales is historically given before the transition to capitalism. But in extent and in substance they are transformed utterly at the hands of capital. Just as spatial integration is a necessity of the universalization of abstract labor, in the form of value, so the differentiation of absolute spaces as particular scales of social activity is an inner necessity for capital. As a means to organize and integrate the different processes involved in the circulation and accumulation of capital, these absolute spaces are fixed within the wider flow of relative space, and become the geographic foundation for the overall circulation and expansion of value. Inherent in the determination of value, therefore, is the creation of an integrated space-economy organized at these scales. This is a dynamic process; however fixed these scales are made, they are subject to change, and it is through the continual determination and internal differentiation of spatial scale that the uneven development of capitalism is organized. The vital point here is not simply to take these spatial scales as given, no matter how self-evident they appear, but to understand the origins, determination, and inner coherence and differentiation of each scale as already contained in the structure of capital.

THE URBAN SCALE

The centralization of capital finds its most accomplished geographical expression in urban development. Through the centralization of capital, urban space is capitalized as an absolute space of production. Geographical differentiation due to the centralization of capital also occurs

at other spatial scales, but there the results are neither so directly nor so exclusively the product of centralization. A more complex combination of forces is involved and the final pattern is nowhere as "clean" as it might appear to be at the urban scale. As regards urban space, capitalism clearly inherits a division between town and country, but the centralized economic wealth and activity represented by the pre-capitalist town resulted primarily from the need for an organized market exchange system, or else from religious and defense functions. Only with the development and expansion of industrial capital did the centralization of productive activity come to supersede the market function as the determinant of urban development. If the urban scale as such is the necessary expression of the centralization of productive capital, the geographical limits to the urban scale (not to be confused with the administrative boundaries of a city) are primarily determined by the local labor market and the limits to the daily commute. With the development of the capitalist city there is a systematic differentiation between the place of work and the place of residence, between the space of production and the space of reproduction. As an empirical definition of the limits to urbanism, the importance of the labor market is well understood in bourgeois social science, especially in geography and economics.[8] But the implications of this spatial relation are not developed in bourgeois social science and it is this lacuna that Castells attempts to fill. The "urban unit," he says correctly, is essentially "the everyday space of a delimited fraction of the labour force." But from here Castells proceeds to define the "specificity of the urban" as a field of "collective consumption"; "the urban is the sphere of reproduction" while the regional scale, he says, is the space of production.[9] But this equation of urban versus regional with reproduction versus production rests on a rather simplistic confusion between on the one side the geographical limits to the urban scale and on the other the forces and processes which lead to the urban centralization of production capital in the first place.

The importance of the journey to work and of the limits to mass commuting by the labor force is not simply a physical matter. The cost of

the journey to work is a component of the value of labor power, and a component which takes on critical importance in the geographical expression of the value of labor power. Thus the geographical limits to daily labor markets express the limits to spatial integration at the urban scale: where the urban limits have become overextended, there threatens a fragmentation and disequilibrium in the universalization of abstract labor; where they are too constrained geographically, the urban labor force is comparatively limited and the possibility arises of premature stagnation in the development of the productive forces. The expansion of urban space, then, is not just a matter of increased centralization of the productive forces or the expansion of the scale at which the daily system of concrete labour takes place. It should be construed, rather, as the expansion of the daily geographical sphere of abstract labor.

Equalization across urban space is accomplished in the geographical unity of the labor market. To the extent that this unity is broken down and the tendency toward equalization frustrated, crisis is threatened in the urban space-economy. What this amounts to is the following condition: the absolute geographical expansion of urban space must be synchronized with the expansion of value at the hands of accumulation. After all, capital does face a choice, if a highly constrained one, as regards the geographical location of new or expanded productive activities and ancillary functions. Development may well involve absolute urban expansion but it can equally be achieved through in situ expansion: the consumption of existing space is intensified, or parts of that space are reproduced, restructured, to fulfill new needs. Now the internal differentiation of urban space determines the concrete conditions upon which urban expansion builds. At the most basic level, urban space is divided between spaces of production and spaces of reproduction leading to the local concentration of specific activities and land uses—industry, transport, residential, recreation, retail, commercial, financial, and so forth.

Earlier we made the assumption that production capital led the process of structuring and restructuring of geographical space, but we can now see the limits to this assumption. Production capital is still important,

not just because of the location of industry, but also because the capital employed in the immediate building process is always production capital. The consumption of the built commodities, of course, may involve a host of land uses other than industrial, and it is not generally the pattern of industrial investments which dictates the others, at the urban scale. To the extent that residential, industrial, recreation, and other land uses are differentiated and coordinated at the intra-urban level, the coherence of urban space results from the operation of a different function of capital. However much the fact of urban development results from the centralization of production capital, its *internal* differentiation results from the division between this and other land uses, and is managed through the ground-rent system. Whatever the debates and disagreements concerning the precise characterization of urban form and process, there is essential agreement between the bourgeois and marxist literature that ground rent plays the fundamental role in mediating the geographical differentiation of urban space.[10] As a direct result of the functioning of ground rent a binary axis—from low ground rents at the periphery to high ground rents at the core—is woven through the more complex patterns of urban differentiation.

The basic building block of urban space is the individual absolute space of private property, and each such space has a price in the form of ground rent. The ground rent of a particular space is determined by a number of things including its properties (size, surface form, contemporary use, etc.) and its relation to other facilities and places (downtown, transport, sewage, etc.). The ground-rent system levels urban space to the dimension of exchange-value, but does so as a means of then coordinating and integrating the use of individual spaces within urban space as a whole. The equalization of urban space in the ground-rent structure becomes the means to its differentiation. Competing uses are geographically sorted in the first place through the ground-rent system. Yet there is certainly no guarantee of effective integration. To the extent that some facilities are consumed in common and may serve simultaneously as means of production and reproduction, no individual capital

may be able or willing to provide them. To maintain the conditions for an orderly development of urban space, the state (at local or national level) generally steps in since it is able to circumvent the land market. The rationality of the land market is exchanged for the direct political logic of urban planning. Given the collective consumption of transport facilities, and the importance of the journey to work, this is particularly crucial as regards construction of the means of transportation, but also applies to sewage, electricity, water supply, etc. The order of the land market is circumvented in the name of a collective order for capital, but the actual results might well be disorder.[11]

But the competitive land market itself, or rather its integration into the broader economy, leads equally toward disorder of its own accord. To the extent that ground rent becomes an expression of the interest rate with the historical development of capital,[12] the ground-rent structure is tied to the determination of value in the system as a whole. Despite this, and to the extent that land itself becomes an object of speculative exchange and development, the integrative function of ground rent is disrupted. Responding to the signals of speculation, ground rent is systematically prevented from integrating and coordinating urban development in a fashion consistent with the requirements of the universalization of abstract labor. The contradictions are displaced upward and outward.

THE GLOBAL SCALE

The lower geographical boundary of global space is represented by the absolute space of private property, and if we leave aside the question of non-terrestrial space, the geographical limits of global space are given. As an absolute space it is a very efficient container for human activity. Without fear of contradiction we can credit this to nature. But what we make of this space is a wholly different matter. Capitalism inherits the global scale in the form of the world market. Indeed the production of this scale, however incompletely at first, is one of the conditions that makes the development of capitalism possible. But as ever, what capital inherits in one form it proceeds to reproduce in another. A certain primitive

accumulation of space (i.e., private property or land parcels), beginning in the countryside,[13] provides the essential condition for transforming the geography of feudalism into the geography of capitalism. The world market based on exchange is transformed into a world economy based on production and the universality of wage labor. Spatial integration through the price mechanisms of the commercial market—at best sparse and superficial—is increasingly infiltrated and replaced at a more fundamental level by spatial integration through the law of value.

Whereas the urban scale is the product of a differentiation process executed through the centralization of capital, the international scale is purely a product of the tendency toward equalization. There is nothing particularly original in this. The cutting edge of capital's drive toward universality is its attempt to level the world's labor power to the status of a commodity. Capital bludgeons, connives, and insinuates the wage-labor relation into virtually every crevice of the pre-capitalist systems it encounters. Where exceptions are tolerated, even encouraged, they are so due to the otherwise universal colonization of the world economy by the wage-labor relation. Just as the necessity of accumulation implies the centralization of capital responsible for the formation of a distinct urban scale, the same necessity leads toward the equalization of a global scale of production. Through the universalization of the wage-labor relation, this scale is defined at the level of the relations of production. This is as we might have expected. Capitalism defines the global geographical scale precisely in its own image. Despite the economic forces and processes that help constitute it, the definition of the global scale is quintessentially political; it is a product of the class relations of capitalism.

As a means of universalizing the law of value, the expansion of capital fills out the political and economic content of the absolute space it inherits. As this absolute expansion approaches the limits of the global scale, the *formal* aspects of spatial integration through the market are increasingly subsumed beneath a tendency toward *real* spatial integration. Theoretically, this parallel with Marx's idea—that there is a transition from the formal to the real subordination of labor by capital—is

exact.[14] Historically, the evolving hegemony of real spatial integration at the global scale is associated with the rise of imperialism (different from narrow colonialism) which Lenin discussed, and the origins of the First World War. It is precisely this historical transition from a formal to a real spatial integration that lies behind the transition, noted in the previous chapter, from the absolute geographic expansion of capital to the production of space through internal spatial differentiation. Colonialism did function as some sort of "external" spatial fix, however transitory, but in the same measure as spatial integration at the global scale became real and not simply formal, external geographical space was denied its externality. As first nature came to be produced within and as a part of second nature, "external" space was likewise internalized and produced *within and as a part of the global geography of capitalism*. This is the "development of underdevelopment," which lies at the heart of uneven development.

If the equalization of global space results from the universal tendency of the wage-labor relation, then the main axis of geographical differentiation at this scale is the differential determination of the value of labor power, and the geographical pattern of wages thus effected. The historical roots of this process lie in primitive accumulation, but there is no automatic translation from the inherited disparities in levels and conditions of development to the present pattern of differentiation. Rather, there is a contradiction at the heart of the accumulation process, the historical development of which has determined the differentiation of global space. We alluded to this above in the discussion of the spatial fix. Capital has no choice whether to expand into pre-capitalist societies but it does have a "choice" about how it does this. On the one hand, the developed, highly centralized capitals must constantly search not just for the physical elements of production—the necessary use-values—but for cheaper and cheaper sources of these materials, especially new materials and labor power. In the expanding search for relative surplus value, capital is driven to convert these external, relatively undeveloped spaces into places of production and accumulation. On the other hand, driven

by the constant threat of over-accumulation, capital attempts to convert these places into markets for its goods, places of consumption. But it cannot do both, because it can convert these undeveloped societies into places of consumption only by developing them and by raising wages to facilitate consumption. There is a contradiction between the means of accumulation and the conditions necessary for accumulation to proceed,[15] and it has a trenchant geographical shape.

Marx understood this contradiction but tended to emphasize the market function of the "backward" nations, and this is consistent with his cautious optimism concerning Indian economic development and his emphasis upon the tendency toward equalization of levels of development. Historically, however, capital itself appears to have emphasized the possibilities for accumulation rather than consumption in these areas, maintaining the wage differential and depending on the domestic markets of the developed world to accelerate the rate of consumption. As a result, the geographical differentiation of the globe according to the value of labor power is replicated in a series of more fixed spatial characteristics, such as a pronounced international division of labor and a systematic differentiation between the organic composition of capital in developed and underdeveloped areas.[16] The emphasis on accumulation overconsumption is just that, however—an emphasis. Even the newly industrializing economies are severely circumscribed by their function in the international division of labor and by international control of capital.[17] For in the end the contradiction between the means of accumulation and the conditions necessary for accumulation remains. Insofar as it originated with primitive accumulation and the opposition of capital against pre-capitalist societies, it retains the dichotomous form. But today it is less an issue of the "articulation of different modes of production," more an issue of development at one pole and development of underdevelopment at the other (to use Frank's insightful phrase).[18] Pre-capitalist modes of production have been integrated into the world capitalist system as "internalized externals." As such they have not made the complete transition from formal to real integration, and the real inte-

gration of the global space-economy is necessarily incomplete. The more labor power is commodified in the world economy, the more the value of labor power becomes a lever for disrupting the tendency toward spatial integration. The more apparent, therefore, does it become that the original political foundation of world capital is the major barrier to further social development.

THE SCALE OF THE NATION-STATE

If, respectively, the urban and the global scales represent the consummate geographical expression of the contradictory tendencies toward differentiation and equalization, the scale of the nation-state is a less direct product of this contradiction. The impetus for the production of this scale comes from the circulation of capital, more specifically from the dictates of competition between different capitals in the world market. Bukharin made the general point that the capitalist state grows out of the economic foundation of society, that the internationalization of capital was simultaneously its nationalization (in the sense that a national economy and a national capital are developed), and that this provides the specific economic foundation for the capitalist nation-state. This leads to a hierarchy of nationally based laws of value more or less integrated within a larger international law of value. To the extent that this leads to "unequal exchange," the latter results from the uneven development of capitalism and not vice versa.[19] The question would seem to be why the organization of capital at this scale takes such a rigidly fixed spatial form.

We have already referred to the immobility of production capital in the landscape, and Marx observes of this necessity that it plays "a peculiar role in the economy of nations." This capital "cannot be sent abroad, cannot circulate as commodities in the world-market." The peculiarity of this immobilized capital, which we will treat as the "national capital," is that it must be defended against other capitals if it is to function in the production of relative surplus value. This implies the provision of various infrastructural supports and trade laws, the regulation of the

reproduction of labor power, and support for the local money, all of which are necessary at the level of the collective capitalist rather than the individual. The state develops to fulfill these tasks as well as to defend capital militarily, where necessary. In addition, capital must defend itself against the working class from whom there is a permanent threat of revolt. "Each step in the development of the bourgeoisie was accompanied by a corresponding political advance of that class." The "bourgeoisie has at last, since the establishment of modern industry and of the world market, conquered for itself, in the modern representative state, exclusive political sway."[20]

Capitalism inherits a geographical structure of city-states, duchies, kingdoms, and the like—localized absolute spaces under the control of pre-capitalist states—but as ever it transforms what it inherits. With the increased scale of the productive forces and the internationalization of capital, the capitalist state generally combines a number of these smaller states into a nation-state. The geographical extent of the nation-state is constrained on the low end by the need to control a sufficiently large market (for labor and commodities) to fuel accumulation. At the high end of the scale, a nation-state that is too large finds it difficult to maintain political control over its entire territory.[21] The actual determination of the limits to this scale does not come directly from the dialectic of equalization and differentiation, however much it is provoked by this relationship, but is politically determined by a series of historical deals, compromises, and wars. What is determined precisely is a set of territorial jurisdictions which are set in the landscape with barbed wire and customs posts, fences, and border guards. The result is a subdivision of the globe into 160 or more differentiated absolute spaces.

In the volatile and dynamic world of capital accumulation, this political subdivision of the globe has been a remarkably stable arrangement for organizing the expansion and accumulation of capital. However substantial the restructuring of national spaces associated with both world wars and with the decolonization of the underdeveloped world, the similarity between the world map of 1980 and that of 1900 is greater than

over any previous eight-decade span in the history of capitalism. The division of the working class into national units and the fostering of nationalist ideologies was clearly important in producing this stability. So long as the world economy continued to expand and accumulation at the global scale could be achieved through the economic mechanisms of capital export (in all its forms) and not by direct colonial invasion, there was no need for the state as such to expand. When devaluation and crisis set in, the division of the world into nation-states proved an able mechanism for displacing the more destructive effects of competition from the economic level of the individual enterprise to the political sphere of the state. Individual components of the national capital certainly experience bouts of devaluation, but to the extent that the entire national capital is threatened in the world economy, the state defends it with everything from tariffs to trade embargoes, tax breaks to tanks (used at home as well as abroad). Hence Lenin's dictum that imperialist war is only the logical extension of economic competition.

Put this way, another important question arises. To the extent that economic competition forces devaluation, the result is generally a rapid centralization of capital. Why then after the enforcement of devaluation through military and political means has a similar political centralization not taken place, as a means to further economic centralization? Why, in other words, does the geographical rigidity of the national scale contrast so markedly with the fluidity of urban expansion? On the one hand, the decolonization of the underdeveloped world has made clear that permanent and direct political control is no longer a necessary correlate of the geographical expansion of national capitals in the world economy. The internationalization of capital has brought with it a number of international institutions, such as the IMF, the World Bank, or the United Nations, to fulfill some of the functions of an international state, but it has not brought about the internationalization of the nation-state itself. The retention of the nation-state at its present scale could be seen, therefore, as a counteracting force to centralization; this has the crucial effect of counteracting the falling rate of profit. But while it certainly

entails that result, this is by no means the explanation of the historical stability of this scale. Rather, the explanation would seem to involve, more centrally, the issue of political control over the working class. As economically obsolete as it is, the nation-state remains highly functional politically. It is difficult to imagine that after the First World War, British capital could have controlled German workers from London, or that after the Second World War, European workers could have been controlled from Washington, D.C.

For the working class, and for humanity as a whole, there is a terrible irony in all of this. For its sufferance of the political repression of the state, the working class is compensated with the privilege of taking up arms in defense of the state, the national capital, and the "national interest."[22] The division of the world economy at the scale of national capital is the necessary foundation upon which capital can launch its aspirations to universality. But insofar as it leads with equal inexorability to inter-imperialist wars, this differentiation of the world economy into nation-states also threatens the entire foundation not only of capitalism but of humanity itself.

It is at this scale of separate nation-states that regional development and differentiation are important. The internal differentiation of national territories into identifiable regions is the geographical expression of the division of labor, both at the level of individual capitals and the particular division of labor (between sectors). The regional concentration of capital is a straightforward result of the tendency toward spatial centralization, but this is not such a discretely defined process as at the urban scale; much more is involved. Insofar as the particular division of labor finds a clear spatial expression it is at this scale. Different sectors of the national and international economy are concentrated and centralized in certain regions. This is what we generally refer to as the territorial division of labor. It operates at a scale larger than the urban, which is a single geographical labor market, but below the international division of labor where the mobility of labor between different nation-states is severely constrained. Despite the latter difference, the crystallization

of distinct geographical regions at the national scale has the same function as the global division between the developed and underdeveloped worlds. Both provide geographically fixed (relatively) sources of wage labor, one at the international scale and the other under the more direct control of the national capital.

The early pattern of the territorial division of labor was heavily influenced by geographical variation in the availability of key raw materials. Certain sectors of the economy and groups of workers with specific skills arranged themselves in regions around these natural endowments. But with the development of capitalism, according to Marx, the "territorial division of labour which confines special branches of production to special districts of a country, acquires fresh stimulus from the manufacturing system, which exploits every special advantage." While this intensification of the territorial division of labor can be seen to occur, it does so only at the outset of capitalist manufacturing. With the increasing emancipation of the productive forces from the dictates of nature, the manufacturing system, or rather (in Marx's parlance) modern industry, no longer provides "fresh stimulus" to the received pre-capitalist pattern of regional specializations. On the contrary, it develops a territorial division of labor unique to capitalism; the received regional mosaic is destroyed. Local economies are integrated into the national and international economies as part of a new spatial configuration. Marx observes this process in relation to the development of new means of transportation which, he says, are responsible for the "deterioration of old centres and the rise of new centres of production." The result is a "shifting and relocation of places of production and of markets as a result of the changes in their relative positions caused by the transformations in transport facilities." Marx continues:

> A place of production which once had a special advantage by being located on some highway or canal may now find itself relegated to a single side-track, which runs trains only at relatively long intervals, while another place, which formerly was remote from the main arteries of traffic, may now be situated

> at the junction of several railways. The second locality is on the upgrade, the former on the downgrade. Changes in the means of transportation thus engender local differences in the time of circulation of commodities, in the opportunity to buy, sell, etc., or an already existing local differentiation is distributed differently.[23]

The point that must be stressed here is that these changes and developments in relative space are neither accidental nor arbitrary but integral to the production of the national scale and its differentiation into rising and declining regions.

With the development of the productive forces, the increased mobility of capital into and out of production, and the steady emancipation of industry from natural constraints, it is wage-rate differentials and to a lesser extent the extant pattern of labor skills which determine the actual locale toward which capital flows and concentrates. The greater the centralization of capital, the more important does this level of geographical differentiation become since more and larger capitals are operating at the national and international rather than local scale and can thereby take advantage of (and help to produce) differentiations at this scale. Further, the organizational division of a single capital into different corporate divisions can further accentuate this territorial division, since the organizational separation of different work processes with very different labor conditions facilitates this geographical separation. Research and development, for example, can be concentrated in one region where technical, university-trained labor is in large supply, and mass production can be concentrated elsewhere in regions with a reservoir of unskilled workers.[24]

The differentiation of national space according to the territorial division of labor is acutely sensitive to the rhythm of expansion and crisis. Whereas some specialization of production activities takes place at the urban scale, it is more limited than at the level of regional differentiation which is defined in part at the level of the particular division of labor. The rapid expansion and equally rapid devaluation that accom-

panied the rise and fall of particular sectors are geographically localized at this level. The increasing mobility of capital is not constrained here by national boundaries and the movement of capital into and out of regions can be more rapid and more complete at this level than at the international scale. The effects of accumulation and devaluation on fixed capital are most sharply translated into spatial development and decline at the level of regional subdivisions of the nation-state. In the context of the present global crisis, this perhaps helps to account for the growing focus on so-called regional problems, and for the appearance that the regional subdivision of national space is a distinct scale of productive activity.

Although we have viewed regions as the product of a differentiated national space, there is no intrinsic problem with the development of supranational regions. Indeed, given the political rather than economic fashion in which national boundaries were set, and the smallness of some of the nation-states that emerged, we could expect the development of supranational regions. Given the expansion in the scale of the productive forces, the continued internationalization of capital, and the fossilization of nation-state boundaries as a means of political control, the development of supranational regions may be an economic necessity among all but the largest nation-states. And this is precisely what is happening in Europe today, where the internationalization of the production process and the consequent pattern of northern deindustrialization versus southern expansion is leading to a thoroughly supranational division between regions. Gottmann's prophecy of 1960 that "these European regions may be seriously in danger of running out of space" has not been fulfilled. Indeed, the idea of regions "running out of space" makes little sense once we comprehend the contradiction between the economic determination of the regional scale and the political determination of national boundaries. The real question, in the light of the European experience, is whether differentiation of geographical space at the level of separate regions will remain a subset of the national scale, or whether, as seems more likely, the division of global space into regions will be

more directly determined at the international scale as part of the new international division of labor.[25]

But capital attempts continually to reinforce spatial integration despite self-imposed geographical barriers (in this case the national boundaries hindering regional expansion). And at this point the contradiction spills out. First, to the extent that capital escapes one set of spatial barriers, it reimposes them at a different scale. New supranational regions require political institutions to match, and the development of the EEC in particular owes much to this process. The new spatial fixity brings back the old contradictions in spatial integration and is no spatial fix. But more important, the tendency toward the internationalization of capital is severely restrained by the necessity of the nation-state as a means of political control. This too is evident from the experience of the EEC. Thus at this scale too we have a geographical version of Marx's diagnosis that the means of capital accumulation run inescapably toward contradiction with the conditions of accumulation; the necessary means to regulate and control the political basis of capital—the wage-labor relation—contradict the ability of capital to expand.

In summary, the drive toward universality under capitalism brings only a limited equalization of levels and conditions of development. Capital produces distinct spatial scales—absolute spaces—within which the drive toward equalization is concentrated. But it can do this only by an acute differentiation and continued redifferentiation of relative space, both between and within scales. The scales themselves are not fixed but develop (growing pangs and all) within the development of capital itself. And they are not impervious; the urban and national scales are products of world capital and continue to be shaped by it. But the necessity of discrete scales and of their internal differentiation is fixed. This provides the last element of the foundation of the theory of uneven development.

III. A Seesaw Theory of Uneven Development

In a remarkable passage from volume 3 of *Capital*, Marx integrates a number of themes lying at the center of his analysis of capitalism. Increasing the mass of profit entails a slower rate of profit, he says, but also

the wholesale centralization of capital, "i.e. the swallowing up of the small capitalists by the big and their deprivation of capital":

> It is again but an instance of separating—raised to the second power—the conditions of production from the producers to whose number these small capitalists still belong, since their own labour continues to play a role in their case. The labour of a capitalist stands altogether in inverse proportion to the size of his capital, i.e., to the degree in which he is a capitalist. It is this same severance of the conditions of production, on the one hand, from the producers, on the other, that forms the conception of capital. It begins with primitive accumulation . . . appears as a permanent process in the accumulation and concentration of capital, and expresses itself finally as centralisation of existing capitals in a few hands and a deprivation of many of their capital (to which expropriation is now changed). This process would soon bring about the collapse of capitalist production if it were not for counteracting tendencies, which have a continuous decentralising effect alongside the centripetal one.[26]

In a more geographical vein, Marx noted that "capital grows in one place to a huge mass in a single hand because it has in another place been lost by many."[27] If in the light of the previous discussion of equilibrium and spatial scale, we translate the former exposition into the geographical perspective of the latter, then we have the rudiments of the theory of uneven development.

Behind the extant pattern of uneven development lies the logic and the drive of capital toward what we shall call the "seesaw" movement of capital. If the accumulation of capital entails geographical development and if the direction of this development is guided by the rate of profit, then we can think of the world as a "profit surface" produced by capital itself, at three separate scales. Capital moves to where the rate of profit is highest (or at least high), and these moves are synchronized with the rhythm of accumulation and crisis. The mobility of capital brings about the development of areas with a high rate of profit and the underdevelopment of those areas where a low rate of profit pertains. But the process of development itself leads to the diminution of this higher rate of profit.

We can see this not simply by appeal to Marx's conclusion that there is a tendency toward the equalization of the rate of profit—although this has a clear geographical expression—but also concretely at each spatial scale. At the international and national scales, the development of the productive forces in a given place leads to lower unemployment, an increase in the wage rate, the development of labor unions, and so forth, all of which help lower the rate of profits and thus take away the very reason for development. Likewise at the urban scale, the development of underdeveloped areas leads to a rapid increase in ground rent and the frustration, after a point, of further development.

At the opposite pole, that of underdevelopment, the lack of capital or its persistent overflow leads to high unemployment rates, low wages, and reduced levels of workers' organization. Thus the underdevelopment of specific areas leads, in time, to precisely those conditions that make an area highly profitable and hence susceptible to rapid development. Underdevelopment, like development, proceeds at every spatial scale, and capital attempts to move geographically in such a way that it continually exploits the opportunities of development without suffering these economic costs of underdevelopment. That is, capital attempts to seesaw from a developed to an underdeveloped area, then at a later point back to the first area which is by now underdeveloped, and so forth. To the extent that capital cannot find a spatial fix in the production of an immobile environment for production, it resorts to complete mobility as a spatial fix; here again, spatial fixity and spacelessness are but prongs of the same fork. Capital seeks not an equilibrium built into the landscape but one that is viable precisely in its ability to jump landscapes in a systematic way. This is the seesaw movement of capital, which lies behind the larger uneven development process.

In *The Communist Manifesto* Marx and Engels state in the context of geographical expansion that capital "creates a world after its own image."[28] This is nowhere clearer than in the geographical contradiction between development and underdevelopment where the over-accumulation of capital at one pole is matched by the over-accumulation of labor at

the other. Mandel expresses this succinctly when he says that from "the Marxist point of view . . . underdevelopment is ultimately always underemployment, both quantitatively (massive unemployment) and qualitatively (low productivity of labour)."[29] Reaching back to the discussion of the ideology of nature in chapter 1, we asked with Sohn-Rethel the general rhetorical question: "How can the truth of the bourgeois world present itself other than as dualism?"[30] In the context of uneven development where developed and underdeveloped spaces are produced as geographic opposites, the question takes on a more concrete and more profound significance.

The point here is not just that capital creates a fixed geographical world after its own image, where development and underdevelopment are geographical mirrors of the capital-labor relation, but that the dynamism of geographical space is equally an expression of the image of capital. The seesaw from developed to underdeveloped space and back again is none other than the geographical expression of the constant necessary movement from fixed to circulating capital and back to fixed. At an even more basic level, it is the geographical manifestation of the equally constant and necessary movement from use-value to exchange-value and back to use-value.

With everything it can muster, this is what capital strives to do: it strives to move from developed to underdeveloped space, then back to developed space which, because of its interim deprivation of capital, is now underdeveloped, and so on. If it can but move with sufficient alacrity, capital can remain one step ahead of the falling rate of profit. To the extent that it can realize this geographical seesaw, capital can indeed realize some sort of spatial fix. Yet there is no omnipotence to capital, and what it can do in reality—albeit a reality of its own making—is much more limited.

Insofar as uneven development resulting from the seesaw movement of capital depends on the ready mobility of capital, we would expect to find the furthest development of this pattern where capital is most mobile—that is at the urban scale. And indeed the most developed pattern

of uneven development does occur at the urban scale. The geographical decentralization of capital in the construction of the suburbs led to the underdevelopment of the inner city. Capital was attracted by the rapid increase in ground rent that accompanied suburban development, and so the inner city with already high ground-rent levels and therefore low rates of return was systematically denied capital. This led to the steady devaluation of entire areas of the inner city, whether obsolete port, commercial, and warehousing land uses or residential neighborhoods. At some point, the devaluation of capital depresses the ground-rent level sufficiently that the "rent gap" between actual capitalized ground rent and the potential ground rent (given a "higher" use) becomes sufficiently large that redevelopment and gentrification become possible. The inner city, which was underdeveloped with the suburbanization of capital, now becomes a new locus of development (or rather redevelopment).[31] The contemporary restructuring of North American and to a lesser extent European cities involves the concentration in the inner city of recreational and upper-middle-class residential land uses, together with professional and administrative jobs, and the increased suburbanization of industrial and routine office activities.

If the seesawing of capital is quite evident at the urban scale, it is less so at the scale of the nation-state. There is little doubt that the present crisis brings with it a restructuring of geographical regions[32] but whether this amounts to a seesaw movement of capital is not at all clear. Such underdeveloped regions as central Scotland and New England, for example, have certainly begun to attract new development, but so far the development of these regions as a result of this return of capital is limited in extent and type. The answer to this question of how far the seesaw will go is essentially empirical. But there is a further question here that can be refined in the context of the present discussion—the question of whether the differences are converging or diverging—and this in turn provokes the more basic question whether regional differences have not become irrelevant. To the extent that metropolitan growth pushes hard on the scale of regional definitions then indeed regional differences are

rendered differences between different urban centers. And to the extent that the equalization of conditions and levels of production is actually accomplished, then the level of regional differentiation is diluted. Yet the development of supranational regions points in the opposite direction, toward a more accentuated division into regions. It could well be that the answer to this question lies in the relationship between the size of the nation-states involved, and the level of internationalization of capital. In any case, it is clear in the light of this uneven development theory that the apparent convergence of different regions, suggested by a number of authors,[33] can be explained in different terms. The development of the Sunbelt, for example, and the underdevelopment of the American northeast may not afford an illustration of developmental convergence but rather the first phase in the geographical seesaw. Rather than meeting each other on a common plain, as the convergence thesis implies, these regions may well pass each other in the night.

At the international scale, there is little hint of geographical seesaw in action. The capitalist wealth and development is concentrated within a few well-off nations, and capitalist poverty is likewise segregated, albeit at the world scale. The mobility of capital but especially of labor is restricted by the rigidity of nation-state boundaries and by the rigidly opposite conditions of development and underdevelopment. Certainly, there are a handful of so-called newly industrializing countries, from Mexico and Venezuela, Kuwait and Saudi Arabia, to the boom economies of East Asia. And there are so-called core states undergoing a dramatic and uncompensated devaluation, most notably Britain. But these are still exceptions. The newly industrializing nations remain only partly integrated into the world economy on the basis of a very well-defined division of labor.[34] And for all its problems, the British state remains financially and militarily alongside the United States at the center of the world capitalist order.

That the seesaw movement of capital is evident at the urban scale but hardly at all at the international scale suggests the limits to this theory of uneven development. While indeed capital strives to realize the seesaw

movement, as a means to counteract the falling rate of profit, the more absolute the geographic spaces that capital must create to push accumulation and localize devaluation, the greater are the barriers to the mobility necessary to realize the seesawing of capital. As capital stares into the future and runs from the past, it is tempted continually to embrace mobility or fixity as alternative versions of the spatial fix. Insofar as neither of these can work, yet each respectively brings a tendency toward equalization and differentiation of the geographic landscape, the result is an uneven development of capitalism which itself varies between the more stable unevenness of the global scale to the more fluid unevenness of the urban. And whatever the limits placed upon it, the uneven development of capitalism will continue to be driven on by the opposing tendencies of equalization and differentiation, and the seesaw movement of capital that results.

IV. Conclusion

To borrow an image from Nigel Harris, capital is like a plague of locusts. It settles on one place, devours it, then moves on to plague another place.[35] Better, in the process of restoring itself after one plague the region makes itself ripe for another. At the very least, uneven development is the geographical expression of the contradictions of capital. The geographical fixation of use-value and the fluidity of exchange-value translate into the tendencies toward differentiation and equalization. The distinctions, disproportionalities, and disequilibria through which Marx analyzes the overall structure and development of capital translate into so many sources of geographic differentiation within the universalizing tendency of capital. The historic mission of capital is the development of the forces of production via which the geographical equalization of conditions and levels of production becomes possible. The production of nature is the basic condition for this equalization, but equalization is continually frustrated by the differentiation of geographic space. Differentiation as the means to a spatial fix becomes itself the problem to be fixed.

The differentiation of geographical space takes many forms, but at root it expresses the social differentiation that is the very definition of capital: the relation between capital and labor. As uneven development becomes an increasing necessity in order to stave off crises, geographical differentiation becomes less and less a by-product, more an inner necessity for capital. The history of capitalism is not simply cyclical but is profoundly progressive, and this too is etched into the landscape. To the extent that cyclical crises do not purge the system of its contradictions, and that the falling rate of profit is not attenuated, the uneven development of capitalism becomes more intense, as the accumulation process itself is intensified, and with it the tendencies toward differentiation and equalization. The fragility of the economic logic behind uneven development is graphically revealed in crisis when the acute need to restructure geographical space is blocked by existing patterns of uneven development. Despite the usual strengthening of national and political chauvinism with the onset of crisis, the localization of political struggles becomes much harder to maintain as partial crisis develops toward global crisis. Class struggle can be contained only by expanding the scale on which the working class is confronted.

We have seen that given its inherent global tendency toward equalization, capital strives to differentiate space below the global scale as a means of political control as well as economic survival. The working class must attempt the precise opposite; as a class divided it must strive toward equalization at the global scale. The political future for the working class lies precisely in the equalization of conditions and levels of production, a process continually frustrated within capitalism. This is the real historical resolution of the contradiction between equalization and differentiation. It can be achieved to the extent that spatial cooperation among the working class is developed as a political force; the working class reclaims its human nature from its underdevelopment by capital.

In the analysis of fixed capital and science we saw that realization of the tendency toward equalization led to the overthrow of the very basis

of capitalism. Although most acutely spatial in the case of fixed capital, this is a general result for capital. In a much larger sense the equalization of conditions and levels of development lays the basis for the development of socialism. Marx understood very well the progressive character of capitalism; under capitalism, and under capitalism only, could the productive forces be developed to the point where society is genuinely wealthy, and able to produce the mass of social use-values necessary to support the entire human population. But if capitalism develops this potential it never realizes it, precisely because of the class basis upon which this mode of production is built. Nonetheless it provides the development of the productive forces necessary for the egalitarian production and distribution of social wealth; socialism is the stage of history where there is wealth rather than poverty to distribute. The historical mission of capital, therefore, is to develop the conditions under which equalization is possible. To the extent that spatial differences are overcome, the inner tendency of value is geographically realized. But in order fully to realize this tendency, capital itself, and the political differentiation upon which it is built, must be done away with. The struggle to equalize away class relations will lie at the center of socialist history, and this is a predictably geographical project. To paraphrase Marx's observation concerning the country and the city, the abolition of uneven development is one of the first conditions of communal life. Class struggle is the means by which this is achieved; the economic rules of capital are suspended in favor of the direct political determination of history.

Finally, it is interesting to take note of the way in which bourgeois ideology distorts this tendency toward equality. The common bourgeois retort is that socialism is when everyone and everything is reduced to sameness—the lowest common denominator. Everything is the same; diversity has been killed; socialism is boring. In fact, although Marcuse's one-dimensional man is more a tendency than a reality, we have seen that it is capitalism which reduces everything to a sameness, and tends to equalize everything in its path. The notion that socialism will be more of the same comes not from an understanding of the socialist movement

but from a projection of the realities of capitalism. At root it comes from a predictable and vulgar blindness to the distinction between use-values and exchange-values—predictable, because this blindness lies at the root of much bourgeois ideology. The tendency toward equalization under capitalism represents the victory of value over use-value; it is equalization in use-value terms as a dictate of value. The advent of socialism lays the basis upon which use-values can be liberated from value, in reality rather than simply in the bourgeois mind.

CHAPTER SIX

Conclusion

The Restructuring of Capital?

UNEVEN DEVELOPMENT is both the product and the geographical premise of capitalist development. As product, the pattern is highly visible in landscapes of capitalism as the difference between developed and underdeveloped spaces at different scales: the developed and the underdeveloped world, developed regions and declining regions, suburbs and the inner city. As the premise of further capitalist expansion, uneven development can be comprehended only by means of a theoretical analysis of the capitalist production of nature and space. Uneven development is social inequality blazoned into the geographical landscape, and it is simultaneously the exploitation of that geographical unevenness for certain socially determined ends. What I have attempted to do in this work is to abstract from the empirically messy historical conditions

upon which capitalism seizes, and in part produces, and to examine the tendencies toward increasingly systematic unevenness which come more and more to dominate capitalist development. Here lie both the strengths and the weaknesses of the analysis.

If it succeeds in linking the two traditions, geographical and political, and in weaving some of the existing ropes connecting these traditions into more of a rope bridge, however rickety, then it will have served its purpose. If in the process it creates more gaps than were hitherto thought to be there, so much the better. But the limitations are equally clear. In the first place the analysis is essentially confined to treating what Marx referred to as the "ideal moments" of the process. Thus while it sketches the logic of uneven development and the roughest outlines of its actual historical progression, the present analysis can in no way claim to be a precise historical account of the complexity of uneven development. The intent was not to reduce the reality to a mere concept but rather, by developing the theoretical concept, to illuminate the reality of uneven development. In its abstractness, this analysis can very quickly be rendered obsolete as soon as empirical investigations treat uneven development not simply as a "gap" between more developed and less developed regions or as a universal phenomenon, but as the systematic product of previous capitalist development and the fundamental premise of the future of capitalism.

Clearly, also, I have not dealt with the multiplicity of issues involved in the so-called "articulation of modes of production." There is no doubt that this question is historically prior to the question of uneven development under capitalism and the question of articulation is emerging as a substantial focus for historical research into uneven development. But equally there is little doubt that the logic of uneven development is theoretically prior to the problematic of articulation of modes of production. Merchant capital, after all, was historically prior to industrial capital, but it was the latter which Marx analyzed in order to understand the capitalist mode of production. The point is that today the "articulation of modes of production" is a product of the development and limits of

capital, not vice versa. More concretely, it is the logic of uneven development which structures the context for this articulation.

Thus a theoretical understanding of uneven development can contribute significantly to the comprehension of some specific articulation of capitalist and pre-capitalist modes of production, but the specific cases of articulation can contribute little toward identifying the general outlines of uneven development theory. Where, in such cases, the seesaw of capital simply does not happen, the real question is "why?" If at other scales and in other contexts, capital attempts to replicate the "perpetual motion machine" and constantly shift around the globe like a plague of locusts, why in some places as part of a larger imperialism do capital and its attendant social relations remain rigidly fixed? The answer to this certainly requires concrete historical analysis, but the theory of uneven development offers important signposts about what to analyze and how to interpret the findings.

Of far more urgent importance, I would argue, is the question of the present crisis of the world capitalist system. It is a gruesome dictum of twentieth-century geography that the fortunes of the discipline tend to increase during war. And while this is undoubtedly true it may not be war alone that puts geographical space on the agenda. For with the onslaught of crisis, after the speculative waves, one generally sees paper money—debt of every conceivable sort—scrambling desperately to fix itself in real, tangible productive capacity or product. More generally, as the crisis progresses it adopts an increasingly spatial dimension; thus the financial collapse of Chrysler forced the company to lead the way in closures and take backs in the general restructuring of the auto industry. The uneven development of capitalism becomes less a means of uneven expansion than one of uneven decline.

The point is that periods of crisis are also periods of dramatic restructuring. Capitalism is always transforming space in its own image, but in periods of expansion this amounts to the filling in of patterns more or less set at an earlier period. Precisely during crisis are these new patterns set in an unprecedented restructuring of geographic space. And

this is the phase we have entered today. If the sustained devaluation of capital, internationally, during the 1920s and 1930s, followed by the massive and brutal devaluation of the Second World War, set the stage and the opportunity for almost thirty years of postwar expansion, that opportunity is now spent. Since 1973, we have been in a new phase of sustained if uneven devaluation marked by high unemployment, falling average rates of profit, employers' offensives against the working class, plant closures, capital flight, deindustrialization. The restructuring of geographic space is both a response to crisis, part of the vain search for a partial solution, and, at least in all previous crises, an unwitting foundation for longer-term solutions at the hands of capital.

If the restructuring of space at the urban scale, through redevelopment, gentrification, and non-metropolitan growth, is the most accomplished and most apparent illustration of the process, it is also the least important in a long-term sense. The present crisis will be solved at the international scale, primarily, and it is there that a profound restructuring must occur. This raises the possibility that certain kinds of development, previously blocked, will emerge in partial solution to the crisis of capitalism. Thus we saw above that while Marx expected a rapid inclusion of the colonial world into the international market, this integration has not occurred. Capital, rather than using the underdeveloped world as a source of markets, has instead used the Third World as a source of cheap labor, thus preventing its full integration into the world market. Among those who see the postwar period as marked by the intensive regime of accumulation labeled Fordism, it is accepted that for the developed world, "the question of markets was solved on an *internal* basis through the post-1945 development of mass consumption in the metropolises."[1]

For a number of reasons, this solution no longer works today, and especially since 1973 this has raised the specter of dramatic Third World industrialization as the solution to the present economic crisis. Could a massive migration of capital to the Third World act as even a partial spatial fix? This of course is what Lenin (wrongly) thought he saw

happening at the beginning of the century, and all other things being equal, we would expect this movement of capital given the theory of uneven development. It would, of course, in Lenin's terms, simply displace and intensify the contradictions of capital as whole reservoirs of cheap labor were removed from the market, which through a partial equalization of levels of development might attenuate the effects of crisis for a while. Empirically, however, and despite the dramatic industrialization that has taken hold in the 1970s in select Third World economies, a general and sustained industrialization seems unlikely.[2] This kind of restructuring is, so far, blocked by inherited patterns of capital accumulation. A more sophisticated assessment of the possibilities of sustained Third World industrialization will involve identifying the barriers to capital mobility, and in particular to the significant seesaw of capital, at the international scale.

In the search for possible solutions, the reality is more sobering. It is increasingly fashionable in social democratic circles to conclude that if indeed we are in for a bout of restructuring, then this must be a "radical reindustrialization" according to the needs of labor rather than the criteria of capital. The consequent "democratization" of the economy could be enforced by "sustained popular mobilization."[3] This reformism disguised as populism shares with liberal and even supply-side attempts at reindustrialization a tragic misconception of the nature of crises. To be sure, there is a restructuring afoot, but it is in its infancy, and from the urban to the international scales this reindustrialization is still dwarfed by wholesale devaluation of existing capital. The crisis is still spreading, however unevenly, through the world system, but it will not be solved by a smooth turnaround and the casual beginnings of massive reinvestment. Rather it has always involved what Marx called "violent and acute crises," "sudden and forcible devaluations," and a "disruption of the process of reproduction" of capital. As of the middle of 1984, we have not yet experienced those bouts of cataclysmic devaluation; we are as yet in the phase of slow and sustained rather than sudden and forcible devaluation.

Lenin suggested, in the period which ushered in the systematic uneven development of capitalism, that economic competition led through crises to military competition and war. Thus far reality has not disappointed him; uneven development, thy name is war. The point about war is precisely that the economic logic, with which we have been so concerned in this book, is suspended in favor of a military determination of history. Although an economic godsend, so to speak, the massive devaluation of capital in war is the product of military conflict. Thus if we have focused too heavily on the economic logic of uneven development, this is not at all because of some philosophical belief in the universal primacy of economics. It is, rather, a more candid assessment of the history of capitalism since 1945. For during this period, from the core of the system, we can see that capital has led with its economic hand. The investment of capital according to the logic of profit is the primary tool which capital possesses in the class struggle. For in class struggle, too, the purely economic logic of uneven development is contested and ultimately suspended.

Even in the midst of widespread defeats, it is to a working-class movement that we must look for an end to the pattern of uneven development, a pattern and process which implies so much more than it says. It is here that we connect again directly with the political treatment of uneven development. It is not that our goal is some rigidly conceived "even development." This would make little sense. Rather, the goal is to create socially determined patterns of differentiation and equalization which are driven not by the logic of capital but by genuine social choice. The hope is that in our efforts to step beyond the natural history of society and to produce real social history, we can avoid the complete obliteration of nature, and society and history with it. It is not merely capital that must be restructured but the political basis of society, in order to produce a genuinely social geography.

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Afterword to the Second Edition

The Beginning of Geography

I. Deep Space and Satanic Geographies

In his history of the "discovery" of geological time, Stephen Jay Gould refers to James Hutton's famous conclusion—"no vestige of a beginning, no prospect of an end"—as the most significant single announcement of what he calls, in John McPhee's ponderous phrase, "deep time." Whereas, in the seventeenth century, discovered time stretched a mere six thousand years into the past, by the beginning of the nineteenth century a scientific consciousness of time stretched millions of years. "Deep time is so alien," Gould tells us, "that we can really only comprehend it as a metaphor." He recounts the metaphor of the "geographical mile" in which human history occupies only the last few inches; a Swedish portrayal of geological time as the trace of a pet snail set down at the South

Pole during the Cambrian and permitted to proceed toward Malmö; and McPhee's own metaphor whereby the earth's history can be measured as the old English yard, namely the distance from the king's nose to the tip of his outstretched hand, and where all of human history can be erased by a single stroke of a nail file across the end of the royal middle finger.[1] By "visualizing time as geography," space becomes the metaphorical bearer of time's meaning. It is likewise with the most abstract depiction of time, the clock; time is rendered measurable and given meaning via the spatial arrangement of the clock's hands.

The twentieth century has ushered in the discovery of *deep space,* or at least its social construction, and yet it is only as the century draws to a close that this fundamental discovery is becoming apparent. By deep space I do not mean simply the sheer immensity of absolute space, the physical extent of the near-infinite universe as measured (appropriately) in light years. That conception of space is owed most clearly to Newton, and is explored, defined, and refined by physics and astronomy, space science and cosmology. Rather I refer to the relativity of terrestrial space, the space of everyday life in all its scales from the global to the local and the architectural in which, to use Doreen Massey's metaphor, different layers of life and social landscape are sedimented onto and into each other.[2] Deep space is quintessentially social space; it is physical extent fused through with social intent, Henri Lefevbre's "production of space" in its richest sense. In the emerging spatial language of social theory, geographical time is more aptly a metaphor expressing the fluid meanings of space than vice versa.

Deep space and its production are crushingly real. As a means to ground a later conceptual discussion, I would like to discuss two events from the 1980s that give some sense of the meaning and immediacy of "deep space." First, the question of economic crisis. Speaking a year prior to the October 1987 stock market crash, even as the Reagan administration continued to hail the economic boom of the mid-1980s, one banker portrayed the potentially profound consequences of the looming financial crash as a kind of geographical holocaust. With banks

"overexposed," everyone holding excessive volumes of bad debt, and the gap between real and paper value growing ever more cavernous, Thomas S. Johnson, President of New York's Chemical Bank, anticipated an imminent maelstrom: "There is the possibility of a nightmarish domino effect," he predicted gravely, "as every creditor ransacks the globe attempting to locate his collateral."[3] That such a global rampage did not unfold a year later, and that the financial system effectively held as a containment vessel for the "financial meltdown" (as it was called by John Phelan, President of the New York Stock Exchange) does not mean that such a scenario is impossible or even unlikely. More than his recognition of the crisis at the economic core of global capitalism, our banker's haunting nightmare recognizes the fundamentally spatial construction of global capital and the geographical destruction that will be wrought in efforts to "solve" the crisis, at least under the present economic rules of private property. The globe is to be ransacked by inexorable economic forces just because the books on Wall Street cease to add up; the furthest villages plundered because the economic system has stopped making sense.

The largely peaceful revolution from below, throughout Eastern Europe in 1989, gives additional richness to the notion of deep space. The festive destruction of the Berlin Wall by East Germans on 9 November 1989 has come to symbolize the opening of the iron curtain to a new politics in the East. Blythely interpreted by many in the West as an exuberant and long overdue embrace of capitalist democracy, the layers of spatial meaning in these events are multifold. These quiet revolutions open up genuinely new political spaces in Eastern Europe—to a lesser extent so far in the Soviet Union—but they are limited spaces. To the extent that it was mass struggle with only embryonic organization, virtually everywhere outside Poland, that tore down the walls from the East, the limits on these new political spaces are circumscribed only by the imagination and organizational effectiveness of new democratic forms of governance and presumably continued struggle. But to the extent that these revolutions were enabled in part through the non-intervention of

the Warsaw Pact and various national armies—or indeed their active intervention on behalf of the opposition—the limits of the new political spaces are also in part established by the way in which the military hierarchies are reconstructed (or not), permitted to participate in social reconstruction (or otherwise), or indeed force a central role for themselves.

In fact, the premature closure of the revolutions throughout much of Eastern Europe in early 1990 suggests that neither the political limits of the popular imagination nor the military limits of intervention are likely to be the decisive constraints, at least in the short term. Whereas Czechoslovakia moves toward a social democratic posture, more conservative regimes have been elected in Hungary and East Germany amidst widespread signs that unemployment and homelessness come hand in hand with the capitalist market. Poland's is the most aggressive conservatism as an erstwhile labor union, Solidarity, pursues the most unabashed embrace of capital. "Is this all there is?" very soon became the common grumble throughout most of Eastern Europe.

The political results of the 1989 revolts are not simply regional. While they potentially affect every facet of everyday life in every home, factory, and street in Eastern Europe, the results are at the same time resoundingly global. Within hours of the astonishing broadcast of film footage from Berlin, the Bush administration and the Defense Department faced a clamor of congressional demands that the extraordinary $300 billion defense budget be substantially reduced. The endangerment of jobs for American workers in defense plants across the country comprised the first cynical and hardly sustainable line of ideological defense; as ever, "jobs for American workers" should be decoded as "profits for American companies." The end of the Cold War in geopolitical terms was hailed around the world as a stunned Washington administration squirmed in search of new global enemies, finally alighting on Panama. Margaret Thatcher, herself no friend of the defeated regimes of official communism, revealed her class colors admirably with an extraordinary paean to the Secretary General of the Soviet Community Party, Mikhail

Gorbachev (anointed by Western leaders as author of a "democratization" so far forbidden in his own country), while at the same time admonishing the masses in Eastern Europe to "take it slowly for goodness sake" lest national and global "stability" be disrupted. The prospect of a reunited Germany has resurrected an obsolete national and geopolitical essentialism, partly within Germany, but also among the ruling classes of France, Britain, and especially the United States. But German reunification today, in reality, has little to do with geopolitics. Simple spatial propinquity is of limited consequence in the age of IBMs and ICBMs. It is an economic question; the fading of the "American Century," to use Henry Luce's phrase of 1941 (rather optimistically, it would now seem), would progress that much faster with a reunited Germany (within a confederated Europe), doubling with the already prevalent competition from Japan. And yet, in the context of the globalization of production, capital, labor and commodity markets, and financial capital, an open Eastern Europe becomes a virtual vacuum into which crisis-ridden capitals may willingly be sucked. The seesaw of capital takes a definitive lurch to the East. In the eyes of many optimistic businessmen, the opening of Eastern Europe could be a shot of economic adrenalin to global capital, a new world to conquer, one more spatial fix, a new and empty economic space divined from outside the previously resistant geoeconomic boundaries of global capital. With cheap labor and expanding markets, Hungary in particular is widely equated to a "gold mine." And just in time. Their hope would be that substantial investment in and for Eastern Europe might provide sufficient opportunities to resolve or at least attenuate the crises of overproduction and financial indebtedness that Mr. Johnson of Chemical Bank so accurately feared.

But there are many other scenarios. The techniques of integrating nonhard currencies, different wage rates, market prices, and conditions of labor into the European and global political economies are formidable. However these arrangements are worked out, it seems indisputable that even if specific states re-erect comparatively closed economic and political boundaries, Eastern Europe will become far more closely integrated

into the global market. In this respect, the marxist analysis that has traditionally diagnosed Eastern European and Soviet societies and their histories as itinerant toward state capitalism, may well prove prophetic. And yet, after 1989, this would be the pessimistic argument. Grassroots working-class and popular resistance bear the true authorship of the Eastern European revolt which certainly anticipates political and economic alternatives to an oppressive state and economy. But as E. P. Thompson has so forcefully put it, East Berliners did not break down the Berlin Wall just to instigate privatized housing or privatized health care, British or American style.[4] At the present conjuncture in Eastern Europe, therefore, it is still not an economic logic that orchestrates the production of space, but quotidian political struggles, at one and the same time separate and yet more and more closely connected: struggles over political rights defined in class, ethnic, gender, and national terms; struggles over economic rights of employment, shelter, and consumption; struggles over environmental conditions and social services; and struggles over rural development. Economism (but hardly economic analysis) is given the lie not so much by philosophical critique as by the practical dramas of uneven development. The world historic importance of the 1989 revolts in Eastern Europe will eventually be measured according to the ways in which the intermeshed political, cultural, and economic struggles (both within the Eastern bloc, and concerning the integration of these societies into an already unstable global capitalism) reconstruct the local, national, and global spaces of which they are a part.

Stephen Kern has argued forcefully that the essential foundations of our experience of space and time were dramatically restructured around the fin-de-siecle.[5] Today, almost a hundred years later, it may not be untoward to suggest that we are undergoing another such shift in which the meaning of space is even more thoroughly imbricated in its social construction. Nor is this simply a global event. Gentrification and homelessness increasingly etch the simultaneously global and local contours of deep space in restructuring urban centers throughout the West. The regional scales of production are equally restructured through both

deindustrialization and reinvestment in new industrial spaces from Silicon Valley to Taipei. The agricultural regions of the Great Plains in the United States are being fragmented amidst a tumultuous economic and financial, environmental and climatic crisis in the production of nature, leading some to advocate a return of the Plains to a buffalo commons. And in Europe the advent of 1992 threatens to dissolve the national scale of social organization.[6]

But it may be at the global scale that this reconfiguration of space is most clamorous. And nowhere is this intensified production of space as profoundly destructive as in the so-called Third World. While the 1970s, and indeed the 1980s, witnessed the partial integration of several Third World economies and their strong states (the Newly Industrialized Countries) into global capitalism, it also attested to the unprecedented destruction of everyday life elsewhere. The Sahel famine of 1968–74, the chronic famine in Sudan and Ethiopia throughout the 1980s, the local, national, and international wars that rend the postcolonial landscapes of Southern and Central Africa, Eritrea, and Angola, and the military oppression practiced by the apartheid government of South Africa throughout the subcontinent have been the most apparent signs of the brutal ghettoization of sub-Saharan Africa within this restructuring global space. Even more profound, if less commonly recognized, is the utter redlining of this region by global capital, whereby needed capital is systematically denied. In the early and mid-1980s, when Third World debt led the list of economic crises, sub-Saharan Africa was revealed in utter silence as so poor that it did not even have the luxury of indebtedness. While private investment in Africa has dropped 25 percent in the 1980s, and will fall even further as capital re-orients to Eastern Europe, the fourteen nations of sub-Saharan Africa had amassed a mere $4.8 billion in debt to the United States. In these places, international institutions—the United Nations, the World Health Organization, the IMF, the World Bank—together with national organs like the Peace Corps and the Agency for International Development all promised progress, modernization, the influx of capital, political stability, improved living

conditions if only the western capitalist models were followed. Translated from on high into the daily practice of African peasants, the holy texts of progress have wrought nothing less than a swath of satanic geographies across sub-Saharan Africa. Between theory and practice the message underwent an inevitable "mistranslation," integral to modernization theory itself, at a cost of millions of lives. Such is the power of the ideology of uneven development.

II. Material and Metaphorical Space

Contemporaneous with the material reconfiguration of geographical space has come "the reassertion of space in critical social theory."[7] The art historian John Berger may have expressed it best when he argued that the spatial "simultaneity and extension" of events now must command our attention:

> the range of modern means of communication: the scale of modern power: the degree of personal political responsibility that must be accepted for events all over the world: the fact that the world has become indivisible: the unevenness of economic development within that world: the scale of the exploitation. All these play a part. Prophecy now involves a geographical rather than historical projection; it is space not time that hides consequences from us. To prophesy today it is only necessary to know men [and women] as they are throughout the whole world in their inequality.

In his *Postmodern Geographies,* Ed Soja incisively chronicles and illuminates the rediscovery of space in the work of Foucault and Poulantzas, Sartre and Althusser, Giddens and Habermas to name only a few. With Foucault he asks: "Did it start with Bergson or before? Space was treated as the dead, the fixed, the undialectical, the immobile. Time, on the contrary, was richness, fecundity, life, dialectic." And he follows Foucault's recognition of space: "The present epoch will perhaps be above all the epoch of space. We are in the epoch of simultaneity: we are in the epoch of juxtaposition, the epoch of the near and far, of the side-by-side, of the dispersed." Pointing out the engrained historicism of social

theory on the one hand, Soja also indicts the inward looking isolation of most twentieth-century geography on the other; in the last decade and a half, however, he detects an imminent rapprochement between the two. Where social theory strives to grasp the profundity of what we are here calling deep space, a growing movement of geographers has been reaching toward social theory in an effort to reconnect spatial with social discourses. For Soja this reconnection fundamentally involves a "spatialized ontology" which redresses the balance away from historicism and toward a new, philosophically grounded, spatialized discourse of social change.[8]

Perhaps the most dramatic recentering of space from outside the geographical discourse has come from Frederic Jameson who argued in 1984 that "a model of political culture appropriate to our own situation will necessarily have to raise spatial issues as its fundamental organizing concern." Crediting the unlikely source of Kevin Lynch, he goes on to suggest that an "aesthetic of cognitive mapping" is the appropriate focus for this cultural politics. From within geography, David Harvey's work has undoubtedly had the greatest influence. Throughout the 1980s Harvey has sought to establish a "geographical historical materialism." If there is a "new spatiality implicit in the postmodern," as Jameson suggests, this may account for the broad-based excitement generated by Harvey's *The Condition of Postmodernity* which seeks to connect the cultural lexicon in which postmodernism has been played out with a sense of the political, economic, and social shifts accompanying the restructuring of late capitalism.[9] The parallels between Jameson and Harvey, coming from different sides of the reassertion of space, are unmistakable.

But let us pause for a moment, that the full import of some of these statements does not escape us:

"The present epoch will perhaps be above all the epoch of space."
—Foucault

"Prophecy now involves a geographical rather than historical projection."
—Berger

> "A model of political culture appropriate to our own situation will necessarily have to raise spatial issues as its fundamental organizing concern." —Jameson

If Soja is correct about the dominance of historicism, and so many others have made the point (if in different contexts) that on its own it seems incontrovertible, then the shift toward space and geography announced by this array of authors, and numerous others, is no minor event. What could this reassertion of space actually mean? And what are we to make of the comparative silence with which such a far reaching historical and intellectual realization seems to have been met? Who has taken Foucault at his word and explicated the present for us as the epoch of space? Where are the geographical prophecies required by Berger? And who has developed a fundamentally spatial strategy for political struggles based on class, race, and gender? Where are the breathtaking dissertations announcing the spatial and political substance of "cognitive mapping" or for that matter geographical historical materialism?

In the introductory discussion of deep time, we found Gould and others "visualizing time as geography." Space was the metaphorical mirror that imbued time with meaning. And here, I think, is a clue to the silence with which the reassertion of space has been greeted. Whatever the reality of a political and intellectual reassertion of space in social theoretical discourse, it is clear that there are very different understandings of space afoot. For those of us trained in geography, the materiality of space (socially as well as physically constituted) is such a central assumption—an assumption made throughout this book—that it goes virtually unchallenged. This is by no means to exclude alternative understandings of space, but rather to highlight the priority accorded material space. For those trained in social and especially literary theory, however, space intervenes largely as metaphor. It is not that material space ceases to exist in these discourses; rather its materiality is, for them, so unproblematic (absolute space) that it raises few if any worthwhile questions. The interesting questions emerge instead from a gamut of personal, psychologi-

cal, social, and conceptual "spaces"—arenas, realms, contexts, fields, conjectures—in which the dramas of human thought and interpersonal relationships are played out.

Certainly the poststructuralist and postmodernist language of "subject positions," "conceptual space," "theoretical space," "contested spaces," "space of negotiation," "spaces of signification," "ideological space(s)," and so forth makes fruitful reference to space in purely metaphorical tones. "Mapping" seems to cover virtually every kind of plausible translation from one text to another. Why should this be a problem? Here Jameson inadvertently hints at an answer when he admits his own spatial metaphors: "cognitive mapping," he tells us, "was in reality nothing but a code word for 'class consciousness.'" Is the commitment to a spatialized politics really only metaphoric, then? And if this is possible for an explicitly political thinker such as Jameson, how much greater might the dangers be that with literary and cultural discourses arguably coming to lead in its reassertion, and with some social and spatial theorists eagerly adopting such discourses as a retreat from an explicitly oppositional politics, space will be reduced to metaphor, its materiality still unrealized.[10]

And yet I prefer to think that the project is indeed coherent—not merely metaphorical—and that perhaps despite the erudite metaphors announcing geographical space on the intellectual and political agenda, we nonetheless remained confused about the richness of possibilities; there is indeed a nascent commitment to a spatialized politics, but largely because of a lost discourse on space it is difficult to see clearly through a powerful mask of spatial metaphors—difficult to understand the mutuality of material and metaphorical space. In part I am convinced of this from Jameson's own work. The insight and thrill of Jameson's analysis for me (and I think for many others rooted in geographical conceptions of space) lay in his broad decoding of the spatial vista of the city as an expression of the cultural, social, political, and economic upheavals of "late capitalism." This was paradigmatic of precisely the project that a growing number of geographers had embarked on, beginning in the late

1960s and early 1970s, and if Jameson only dimly comprehended the restructuring of the urban landscape as social and built environment, he made a wealth of incisive connections that offered a repleteness of urban vision as yet unrealized. The use of metaphor was central to his success. The asymmetry of criticism with which Jameson was met is equally revealing. From the side of politics and geography, critics lamented his confusion of culture and economy, unfamiliarity with the urban restructuring literature, and wrongheadedness about the timing of the advent of late capitalism. From more cultural circles, however, the dominant critique would appear to be his resilient orthodoxy, as indeed he now concedes in explaining "cognitive mapping" as metaphor.[11]

What would be the dangers of a purely metaphorical conception of space? In the first place, just as our conceptions of material space are enhanced by metaphor, so metaphorical uses of space inevitably refer to material space; the one is constructed from within the other, and so we are not dealing with a crude dualism. In traditional social theory space usually intrudes as the self-evident: as the site, the ground, the stable foundation that lets history move. It defines a fixed set of coordinates that renders historical change coherent. The relationship is thereby asymmetrical; history is the independent variable, geography the dependent. It is to this conception of space as ground (or as a combination of separate grounds) that spatial metaphors invariably appeal; space serves to animate time, to imbue time with a life that can be gauged, measured, appreciated against the deadness of space. Whatever the power of spatial metaphors to reveal especially the fragmented unity of the contemporary world, they work precisely by reinforcing the deadness of space and therefore by denying us the spatial concepts appropriate for *analyzing* that world. Metaphor is inherently juxtapositional; it reveals one truth by *asserting* it as another. If we are to get beyond the reassertion of space, then, in search of rapprochement between the spatial and social, it will be necessary to fill in the conceptual abyss between metaphorical and material space.

In this light it makes sense to conceive of deep space as combining the inherently social processes and produced structures of space together

with the most superficial refractions from space in any given fixed form. Metaphorical and material are thus inseparable in deep space yet remain distinct. To the extent that metaphor dominates our conceptions of space it is the latter refraction of fixed form that informs us; metaphorical appropriations of space are "real" enough but they conceal the life of deep space as effectively as a mirror hides the world behind it. The question that confronts us then is this: what are the translation rules between the material and metaphorical meanings of space, and how can we unearth them in such a way as to further the development of a spatialized politics?

III. The Production of Scale

Henri Lefebvre tackles some of these questions in his definitive and highly original work, *The Production of Space,* which provides the most sophisticated exploration of our knowledge and understanding of concepts of space. If in his earlier work, metaphorical and material conceptions of space were at times unselfconsciously intermixed, there is here a more explicit effort to separate out three kinds of space: real or social space; ideal or mental space; and metaphorical space. He chides Foucault and others for eliding theoretical space and practical space, mental space and real space. He defends mental space insofar as he posits ideal and real space as mutually presupposive, and yet he keenly perceives the self-flattery in which "mental space" can indulge:

> Most if not all authors ensconce themselves comfortably enough within the terms of mental (and therefore neo-Kantian or neo-Cartesian) space, thereby demonstrating that "theoretical practice" is already nothing more than the egocentric thinking of specialized Western intellectuals—and indeed may soon be nothing more than an entirely separated, schizoid consciousness.

Likewise spatial metaphor is mutually implicated within conceptions of material space; they are unavoidable means of constituting meaning but succeed only insofar as they "assimilate space to things and thus relegate its concept to the realm of abstraction." Spatial metaphors thrive on fetishism, in Marx's sense, and reaffirm "abstract space."[12]

There is in Lefebvre a sense that the contemporary space of capitalism *is* metaphor. Borrowing the phrase with which Habermas describes modernism, we might say that with the advent of twentieth-century capitalism, space becomes "dominant but dead," for Lefebvre. The death of space is brought about by its being rendered abstract at the hands of capitalism. The world of commodity production and exchange, the logic and strategies of accumulation, the oppressive rule of the state, the extension of transportation and communication networks—these all bring about an abstract space that is simultaneously disconnected from the landscapes of everyday lives, and at the same time crushes existing difference and differences. Space is "run into the ground." "The State crushes time by reducing differences to repetitions or circularities . . . Space in its Hegelian form comes back into its own." Hegelian space is indeed dead insofar as it is a purely conceptual imposition through the state, but by the same token it is dominant. Space dominates in the dual sense that it is a primary producer and reproducer of social relations and simultaneously a source of oppressive violence: one facet of "the production of abstract space" is "a general *metaphorization* which, applied to the historical and cumulative spheres, transfers them into that space where violence is cloaked in rationality and a rationality of unification is used to justify violence."[13] For Lefebvre, the capitalist "trinity" of land, labor, and capital are made concrete in a "tri-faceted institutional space." Space is:

> *global*, the space of sovereignty, homogeneity, fetishism, and the reduction of difference;
> *fragmented*, which separates, disjoints, and establishes localities to facilitate control or negotiation;
> *hierarchical*, in terms of power and symbolism.

The compulsive homogeneity and violence of abstract space is never total for Lefebvre. If space has undergone a kind of grand fall from absolutism to abstraction, historical spaces do not disappear but are continually recycled. A constant struggle shapes the production of space and the purpose of this struggle—the "strategic hypothesis" as Lefebvre calls

it—is to defeat those ideologies that promote abstract space, to reverse the abstraction of space, and to produce spatial difference that is not at the same time fragmentation:

> Today more than ever, the class struggle is inscribed in space. Indeed it is that struggle alone which prevents abstract space from taking over the whole planet and papering over all differences. Only the class struggle has the capacity to differentiate, to generate differences which are not intrinsic to economic growth qua strategy, "logic" or "system," that is to say differences which are not either induced by or acceptable to that growth. The forms of the class struggle are now more varied than formerly. Naturally, they include the political action of minorities. . . . The strategic hypothesis based on space excludes neither the role of the so-called "underdeveloped countries" nor that of the industrialized nations and their working classes. To the contrary, its basic principle and objective is the bringing together of dissociated aspects, the unification of disparate tendencies and factors. . . . It implies the mobilization of differences in a single moment (including differences of natural origin, each of which ecology tends to emphasize in isolation); differences of regime, country, location, ethnic group, natural resources, and so on.

A new theoretical code is required which would reconstruct and assemble oppositional differences as systems of knowledge connected to, but distinct from, political practices.[14] Alternative concepts of space will be circumscribed until space can be produced differently, difference worked into space as the deliberate strategy guiding a liberatory production of space.

Although first written nearly two decades ago, Lefebvre's focus on difference as the crux of political strategy and (although within the rubric of class struggle) his inclusion and affirmation of what we would now call different subject positions (sexual difference obviously needs to be included as does sexual orientation) is in broad sympathy with contemporary political theories built around the social construction of difference, notwithstanding the fact that much of this work has abandoned a marxist framework, which Lefebvre clearly retains, in favor of a post-marxism/structuralism/modernism. If the central arguments in this

recent work revolve around the integration of class, race, and gender, the negotiation of different subject positions, the theorization of multipositionality that avoids paralyzing relativism—all this in an analytical framework that remains open, provides "spaces" of intervention, avoids totalization, and nurtures political empowerment—if these are the central issues, then it seems clear that Lefebvre's conception of the production of space might provide some possible signposts. Space is a means by which to bind as well as separate, to include as well as exclude, and precisely by bringing to life a critical conception of space, he provides some of the tools for decoding the spatial metaphors that "script" our efforts to integrate, negotiate, and theorize different "positions." This is the brilliance of "the production of space." It mandates the critique of metaphor, but at the same time provides a basis for connecting very different experiences, themselves understood in part through metaphor.

More concretely it is the gravest of errors in the critique of marxism to throw out, as so many now want to do, Marx's argument privileging the working class because of their direct experience of exploitation. We can admit that other subject positions (however defined and bounded) are unique and in that sense privileged, but they are privileged in different ways. The particular privilege of the working class, Marx said, was to be able to understand exploitation "from both sides." By extension we can argue that other forms of oppression according to race and gender, for example, carry their own privilege as integral to their subject position. There is then a negotiation of privileges in opposition, which can be carried out in part through mutual critique, but Lefebvre offers the opportunity to see these as negotiated in the wider sphere of social space and as, consequently, constitutive of that space.

And yet it is not immediately clear what the production of space implies for political strategy. This translation remains to be done, partly because Lefebvre never escapes the terrain of philosophical critique, and partly because in his own history of space, there is an almost serendipitous oscillation between different social spaces and the conceptual spaces deemed to accompany them. The translation still needs to be

made that takes the philosophical critique as given and connects to the production of *geographical* space which, as was argued in chapter 3, integrates the social and physical construction of space. I want to suggest one line of argument that both picks up an earlier discussion in the theory of uneven development and at the same time advances the notion of the production of space.

As a crucial plank in deriving the theory of uneven development in chapter 5, it was found necessary to establish a geographical framework through which the opposing tendencies of equalization and differentiation could take and make place. It was argued that three primary scales emerge in the capitalist production of space, namely the urban,[15] national, and global, and the different means by which these scales were internally subdivided were discussed. Although in general, geographical scale was conceived as a kind of momentary geographical fixation of the dialectic between competition and cooperation, nonetheless, this dialectic was theorized as virtually internal to capital, and while these arguments probably still stand at an appropriate level of abstraction, the *production of scale* and the politics of scale are more complex than such a theorization would suggest. For scale is as much the project of opposition as it is the project of capital. Different societies produce geographical scale integral with the production of space.[16] Whereas we have a modest set of languages for discussing historical difference, we are concept-poor when it comes to geographical differences. Scale, in fact, is the most elemental form of spatial differentiation, from the demarcation of the home to that of the globe. If at one end, global space is the product of the economic relations of the market and political struggles to exclude, attenuate, or encourage the market, the space of the home is the inscription primarily of the reproduction of social relations in which sexual difference and gender-based struggles predominate. Indeed we might even argue that to the extent cognitive mapping, in its straightforward sense, is to be taken as a serious political strategy, its first task would presumably be to establish borders that differentiate places from each other. How else could we even know what to map? If this is not

to be done arbitrarily, a theory of scale—that is a theory of the social production of scales—is a prerequisite.

Geographical scale is political precisely because it is the technology according to which events and people are, quite literally, "contained in space." Alternatively, scale demarcates the space or spaces people "take up" or make for themselves. In scale, therefore, are distilled the oppressive and emancipatory possibilities of space, its deadness but also its life. Equally, scale provides a distilled expression of spatial ideologies: nationalism, localism, regionalism, and, in some forms, racism and xenophobia. The production and representation of scale therefore lie at the center of a spatialized politics even if in much political discourse this spatial struggle is often implicit in arguments over nomenclature, naming places, as much as explicit in boundary struggles. Let me offer a brief example, which involves uneven geographical development within the city.

As elsewhere, the gentrification of New York City has focused initially on neighborhoods located close to the center. Manhattan's Lower East Side came under serious attack following the end of the 1974–75 recession and the easing of the fiscal crisis in 1977, and as financial pressure on housing intensified in the 1980s. With the virtual cessation of federal funds for new housing under the Reagan administration, the city government essentially adopted gentrification *as* New York's housing policy. Apart from programs aimed directly at housing rehabilitation, the city adopted a two-point strategy for "taking back" the Lower East Side, a neighborhood that had been ravaged by absentee landlordism, massive disinvestment, and cuts in social services. One prong of the strategy involved a neighborhood-wide drug crackdown with the long-term goal of making the neighborhood safe again for the white middle classes. A second prong involved "cleaning up" the parks which were increasingly used by the city's growing homeless population and as a venue for the drug business, as well as by a wide cross-section of local residents. The city felt it had lost control of these spaces, especially Tompkins Square Park, and said so explicitly.

Various neighborhood groups organized against the threatened police curfew designed to retake the park—its return to state controlled abstract space, in Lefebvre's terms—and the struggle culminated in August 1988 when a force of four hundred police rioted against demonstrators. "Whose park is it? It's our fucking park," chanted demonstrators. The police conceded the park after several hours of cavalry and baton charges, and this space immediately became the focus of tenant, housing, and homeless organizing in the city. At first the mayor described the park as a "cesspool," and he joined the chief of the Patrolmen's Benevolent Association in blaming the riot on "anarchists, social parasites, druggies, skinheads and communists." The *New York Times* meanwhile, not generally known for its marxist language, billed the riot as "Class Struggle on Avenue B." Within days, a number of organizational links were established both within a virtually unorganized homeless population based in the park, and with new and existing tenant and squatter groups and organizations. New rounds of squatting began, spreading out from the park throughout the Lower East Side; "Tompkins Square Everywhere" was one of the new slogans. At first the city moved only gingerly against squatters and housing demonstrators, and the mayor's acrid denunciations had broadened to include the whole Lower East Side, not just the park. New discriminatory park rules were adopted then hurriedly shelved, and after sixteen months of defensive harassment by the police, the park was the site of a shantytown housing between two hundred and three hundred predominantly African-American and Latino homeless people. In December 1989, with temperatures in single figures, and on the pretext that the presence of the homeless was preventing anyone else from using the park, police in full riot gear moved in, dispersed homeless residents from the park, discarded people's shanties along with any unrescued private belongings, and dumped the lot in ten garbage trucks. The attack on surrounding squats was also intensified.

The point of this example is to highlight the role of scale in the struggle to control space. It began as a struggle over the park but its scale expanded geographically until it defined the whole neighborhood *as*

part of the political expansion of the struggle to include different groups and kinds of organizing as well as different locations. It suggests that a spatial politics not only puts into practice the metaphor that events "take place," but that the true contest concerns the locus of the power to determine the scale of the struggle: who defines the place to be taken (the fragment or fragments for Lefebvre) and its boundaries. It also suggests that successful struggles against abstract space proceed by "jumping scales." By organizing the fractal spaces at one scale into a coherent, connected place, struggles elevate themselves to the next scale up the hierarchy. Hence the importance of understanding the production of space as the production of a nested hierarchy of scales within the global scale, and how these hierarchies are constructed. There are also questions. In particular, once events "take place" as part of a political struggle, how is the transition organized to the more constructive task of making place? This happened at only a very rudimentary level in Tompkins Square Park, partly because of the continual threat of external attack, the internal fragmentation of political organization, and the general lack of resources.[17]

By parliamentary means, the left wing of the Labour Party took control of London in the early 1980s through its majority on the Greater London Council, and enjoyed a greater field for making space. It vigorously reformed some of the institutions responsible for reproducing London as an urban space—increased the provision of dispersed childcare facilities, increased services and access to Afro-Caribbean and black British households and neighborhoods, slashed transport costs, and so on. It was deemed sufficiently threatening to the Thatcher government's class-strategy for Britain that the national parliament abolished an entire scale of abstract space (that of the metropolitan councils).

IV. The End of History or the Beginning of Geography?

With presidents and prime ministers and football coaches seeming to use every press conference to announce that humanity, or at least the nation, is on the edge of a new stage in this or that realm of history, it may have

been refreshing to have a State Department bureaucrat announce amidst the tumult of 1989 that actually, history has ended. According to Francis Fukuyama, the dismantling of official communism in Eastern Europe and the consequent end of the ideological struggle between East and West marked the "universalization of Western liberal democracy" and the fruition of Hegel's concept of history in its own negation. Struggles would undoubtedly continue but they would be localized and peripheral; the future promised little but boredom, history wise.[18]

More interesting perhaps than the article itself which, in its fidelity to Hegel, reveals for all to see the political opportunism of that philosopher, is the extraordinary currency that the "end of history" received. From the point of view of the reassertion of space it may not be difficult to uncover the rationale behind the apparent desperation with which Fukuyama has been put at the center of efforts to explain Eastern Europe.

The claim of the end of history is outwardly silly. An anti-Stalinist joke in East Germany records that history will never stand still. The history of the future, everyone knows, is set; it is the history of the past that keeps changing. Put another way, the revolts of 1989 open up for the first time in four decades at least the possibility that history might be made by the people. It represents the beginning of history again for millions of East Europeans. Nor surely can the arrogant ethnocentrism of the argument pass anyone's attention. Just because U.S. and Soviet leaders have toned down their megaton nuclear threats to each other, it hardly justifies depriving history to Zimbabwean peasants, to the Palestinian Intifada, or indeed the homeless of New York, who are all in very different ways struggling for the chance to have the merest say over their own historical destiny. At the very least, this end of history will intensify rather than dissolve the production of satanic geographies insofar as the war economies of both sides recede.

And yet despite its reactionary idealism, one can glimpse a logic to the proposal. Where Hegel sensed a certain primacy of space over time linked to the rise of the (nation) state, Marx reasserted "historical time as revolutionary time."[19] If the defeat of official communism in Eastern

Europe is seen to mark the end of revolutionary time (despite the glaring historical fact that none of these societies *had* communist revolutions—but then history is only an idea) then indeed historical time would seem to be over. Indeed Marx himself followed this logic in part, but as with much of Hegel, turned it on its head. For Marx, the end of *capitalism* marked the end of a *pre-history* in which social change was directed not by the citizens but by abstract social laws akin to laws of nature, e.g., the economic laws of capitalism. The accomplished *social* and *political* determination of history only began with the overthrow of capitalism. Indeed Lefebvre, who himself penned a book called *La Fin de l'Historie* just four years earlier than *The Production of Space*, concludes: "For Hegel space brought historical time to an end, and the master of space was the State."[20]

The reassertion of space today, however, is not dependent on any Hegelian justification, whether in the form of Fukuyama's doctrinaire idealism or Lefebvre's more critical engagement. It is a much more practical affair and as such more immediately political. The death of geography in the mid-twentieth century did indeed follow self-inflicted wounds, as Soja suggests, but it also represented a response to actual events: the accelerating annihilation of space by time; the tendential equalization of spatial conditions in the global, regional, and urban/suburban realms, as seen from the vantage point of postwar (especially American) capitalism, rendered an already underdeveloped geographical knowledge increasingly marginal to contemporary affairs. Modern capitalism, as Marshall Berman tells us (in another work laden with metaphors and wonderfully revealing of the geography of capitalism), is attended by a certain "nihilism of the bottom line" which incorporates a geographical nihilism, in the construction of space as much as in its destruction.[21]

It is not at all accidental, therefore, that the contemporary reassertion of space in social theory is historically consonant with the reconfiguration and reproblematization of geographical space in the post-postwar world. Nor is this the merely esoteric recognition of a few social theorists. The U.S. Congress, in 1987, resolved to celebrate "Geographical

Awareness Week" (now an annual event) as a means to encourage geographical education which was deemed vital to the economic and military interests of the nation. Less tokenistic but potentially much more influential, ex-Secretary of Defense Casper Weinberger penned an end-of-decade editorial in *Forbes* magazine ("Capitalist Tool") urging Harvard and other American universities to "bring back geography" on the grounds that "we [America] can profit in every sense of the word from these amazing changes" taking place in global affairs. "All of this starts with geography."[22]

The revival of space in social theory is hardly unproblematic, then. It involves basic political oppositions over who controls geographical knowledge, who uses it and how, and how is it produced and for whom. Others who might have been supportive will simply not comprehend the subversiveness of a spatialized politics. But in part, also, opposition can be expected from more progressive quarters among those determined to open up a universe of diverse "subject positions" in which the white male, the working class, and economics are forever vanquished in favor of a Heraclitean world with everything in flux. The only thing that prevents this stance from falling forward in time from Heraclitus' dilemma to Dante's Inferno in which subjects are condemned to pursue eternally shifting and ultimately unattainable positionalities—no vestige of an origin, no prospect of a destination—is the ground guaranteed by a fecundity of spatial metaphors.[23] It was Heraclitus, after all, who demanded amidst the flux "a place to stand." But if, as is claimed here, spatial metaphors can no longer be used innocently, if space is no longer unproblematic, then there is no pre-given spatial ground on which to stand, no automatic geographical recourse for anchoring or disguising subject positions; geography too flows. The subversiveness of space is too precious to be sacrificed blindly in this way; the solution to multipositionality must be sought in a more directly political fashion rather than smuggled in as unexamined metaphor among the dead.

From the most popular to the most philosophical discourse, then, the struggle for space is acutely political. The stakes are anything but

academic. In the epic movie *Fitzcarraldo*, set in turn-of-the-century Peru and Brazil, the director Werner Herzog draws on actual events to depict early European efforts to open up Amazonia, extract its resources (especially rubber), and settle the interior in the image of upper-class European society. The cultural production of nature was awesome. The movie begins with the 1896 opening of the Teatro Amazonas—an opera house—in Manaus, one thousand miles into the Amazonian jungle. Enrico Caruso and Sarah Bernhardt are brought in to perform at the opening. Because the river water is "impure," the gentlemen of Manaus send their shirts and collars to Lisbon for starching. At the opera their horses are watered down "with the best champagne." Fitzcarraldo (played by Klaus Kinski), the protagonist, is a rough cut Irish adventurer whose name comes from the local pronunciation of Fitzgerald. His love is opera, and he paddles 1,200 miles down the Amazon from Iquitos to see Caruso: "It'll be the best opera in the jungle." Fitzcarraldo is driven by the physical as well as cultural production of nature. On a rare map that comes into his possession he notices that two north flowing tributaries of the Amazon, the Ucayali and the Pachitea, flow so close that they almost converge; only a narrow neck of land separates them. The Ucayali reaches well south into the uncharted Amazonian jungles of Peru, but is impenetrable because of a series of rapids—Pongo des Mortes—leaving thousands of square miles unexploited. But the Pachitea is navigable.

Fitzcarraldo, whose previous failures include a "Trans-Andean Railway," is obsessed with the ambition to traverse the neck of land and open up a river route into Peruvian Amazonia for rubber exploitation. "I shall move a mountain," he promises. With a large crew and iron riverboat, he sets off up the Pachitea and soon encounters the Jivaro people, renowned as cannibals, whose unseen presence on the jungled river banks becomes increasingly loud and threatening. Fitzcarraldo calls them "the bareasses." When an attack seems imminent, he plays a Caruso opera from a phonograph on the bow of the ship and the Jivaro Indians are soothed. More than soothed, they sail to the boat and cautiously join his project, signing on to help move the mountain for the great white God. It will be

an awesome technical feat to haul the boat over the saddle and connect the watersheds but Fitzcarraldo anticipates a massive fortune. At the point of furthest European exploration, he encounters two missionaries who recount the fate of the handful of Europeans who ventured further. The missionaries ask the purpose of Fitzcarraldo's trip but he is evasive. Pressed for specifics he eyes the dark jungle and says quietly: "I'm planning something geographical."

Capitalism has always been a fundamentally geographical project. It may not be too soon to suggest, and I hope not too late, that the revolt against capitalism should itself be "planning something geographical."

Neil Smith
New Brunswick, New Jersey
1990

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Afterword to the Third Edition

IN THE QUARTER CENTURY since *Uneven Development* was written, capitalism and its geography have changed dramatically. Globalization, the computerization of everyday life for many, the implosion of state socialism in the Soviet Union and Eastern Europe, reassertion of religion in world politics, the unprecedented industrial revolution in East Asia and the accompanying capitalization of China, the anti-globalization and world social justice movements, global warming, the generalization of gentrification as global urban policy, the rise of biotechnology, the neoliberal state, U.S.-led war for global hegemony under the guise of a war on terror: these and many other developments have fundamentally altered the face of twenty-first-century capitalism. Apart from anything else, the comparatively stable postwar division between a First, Second,

and Third World, already suspect by the 1980s, not only lacks any coherence today but seems quaint, so 1970s. By the same token, in a world now 50 percent urbanized any clear distinction between rural and urban is suspect, as is any gulf between city center and suburb in the age of gentrified centers and corporate, edge city peripheries. On multiple fronts, the unevenness of capitalist development seems more striated than ever.

On this list of momentous shifts, many would include the 2001 attacks on the Pentagon and the World Trade Center in the United States, and there is little doubt that these events will be sieved into history, indeed already are, as some kind of global political watershed, much like the World Wars of the twentieth century. But it was not the events of September 11, 2001, themselves which changed the world, no matter how much a U.S. president might insist to the contrary. Certainly these events were brutally calculated and were colossal in symbolic terms, but they were relatively minor in the annals of humanity's violence against itself. Rather, it was the *reaction* to these events—brutal and calculated on a far wider scale—that marked a watershed, if one is to be found. The events were coldly appropriated to the purpose of cementing a long desired, episodic, but ultimately chimerical global hegemony on the part of a U.S.-centered ruling class. Without in any way denying or devaluing shifts that have occurred at other scales and in other registers, this project of imperial power on behalf of an international but U.S.-focused ruling class, and responses to that project (including 9/11), have to be seen as the overarching political, cultural, and economic reality of the last quarter century. Uneven development today, at all scales from the household to the trans-planetary, is bottom-up as much as top-down, but an analytical appreciation of this global ambition is vital if we are to understand where and how these differently scaled processes meet.

In the first decade of the twenty-first century, many of us in the heart of the beast—geographically defined as Europe, North America, Japan, Oceania, yet excluding Harlem and the Paris *banlieus* and just as surely including "subaltern" centers of class power from Mexico City and Mumbai to Shanghai and Cairo—we are gripped by a serious lack of

political imagination, memory, or even affect. We have in fact become witting or unwitting exponents of Margaret Thatcher's famous dictum, that "there is no alternative" ("tina") to capitalism. Many in the left establishment, who in the 1980s abhorred Thatcher and her dictum, have become converts in the twenty-first century and the most agile proponents of "tina," with the idealist refusal to even recognize capitalism as a coherent category. As ruling classes titrate capitalism into broader, more diverse, yet also purer forms—the state today transforms into a bottom-line entrepreneur, and economists increasingly claim the prerogative of environmental, social, and cultural engineers. Such converts deny the existence of capitalism at all. For capitalism-deniers, there is no coherent target of political opposition, only the balm of a devout and eclectic liberal morality. The invisibility of the alternative is calibrated according to the invisibility of the target.

Indeed, the national liberation struggles of the 1970s—Nicaragua, Angola, El Salvador, among others—have largely faded or were defeated; many of the postcolonial regimes of central and west Africa, divided and conquered before hard-fought sovereignty was bequeathed to them, have converted the polite barbarism of their ex-colonial masters into a new avarice of capitalism in its most destitute corners; environmentalism and multiculturalism are the new politics of the right as much as the left; Europe's socialists have become pioneers of a middle-way neoliberalism that pricks capitalism by embracing it, and yet grassroots socialist movements have come to power in much of Latin America. Meanwhile human rights and the rights of women, however disregarded at home, have become the clarion call for wars motivated by much baser political and economic interests in the West. Still, struggles erupt around the world for basic human rights, decent wages, clean water, dignity, an end to racism, decent working conditions, unions.

The neoliberal conceit which Thatcher, Reagan, Kohl, and Deng Xiaoping helped globalize in the 1980s has been carried forward by their various successors—Bill Clinton, Tony Blair, Indian Prime Minister Atal Bihari Vajpayee, and many others of various ideological stripes

in capitals around the world. National economies are blackmailed into workplace, financial, environmental, and trade deregulation on the grounds that economic commodities are universal "goods," as ordained in the eighteenth-century Enlightenment origins of liberalism, and the market logic that apparently governs their movement is wedged into the popular psyche as the appropriate logic for everything from personal predilection to social choice. National states are likewise blackmailed into undergoing "freedom and democracy" as co-entwined with capitalist free markets. For many in the world—certainly for those within George W. Bush's laughably incongruous (and incompetent) axis of evil (Iraq, North Korea, and Iran), and those deemed to dwell ominously in their shadow (Palestine, Syria, Cuba, Venezuela, and so on)—freedom has been converted from an eighteenth-century promise into a twenty-first-century threat, from a beacon of opportunity into a threatened killing field. A globalized economy grooves with an enforced globalized polity of governance and its attendant globalized culture of consumption and social reproduction. "Freedom will prevail," intoned George Bush in March 2005. "Freedom is the direction of history." In the meantime, the U.S. military is on hand to make sure that history gets it right.

And yet in so many ways things have not changed. The realities of class inequality and environmental destruction, poverty and racial injustice, imperialism and genocide are arguably worse today than twenty-five years ago. Far from being solved by the promise of a deeply globalized capitalism, these cleavages have been deepened more than perhaps could have been anticipated even by critics. There are many weaknesses to the original analysis, of course, and these are surely too evident today, but I have resisted the temptation of retroactive correction or updating. One of its strengths, however, was to see uneven geographical development as the always unresolved contest between, on the one hand, tendencies toward socio-spatial equalization and, diametrically opposed, tendencies toward differentiation. Rooted neither in some philosophical binary adrift from social process, nor in any kind of ontological necessity (which may amount to the same thing), the contradiction between

these opposed tendencies toward equalization and differentiation can be traced, as Marx so clearly perceived, to the internal social relations of the commodity form and its generalization under the capitalist mode of production. They are palpably real. To see uneven development this way helps, on the one hand, to position and explain the dramatically altered landscapes, at different scales, that make up the world today. On the other hand, it forces us to see uneven development as a quite specific panoply of geographies—not at all as necessities—but as created worlds which, whatever the extraordinary power of natural forces, can be made differently. There most certainly is an alternative.

At the deepest level, the aim of *Uneven Development* was to meld nature, space, and social process in the making of observable landscapes, again at multiple scales, and to try and illuminate the ways in which the resultant landscapes scream out for the resolution of social inequality. Then, the connection between nature and a marxist sense of historical social change seemed to many, myself included, perhaps a little forced under the rubric of "the production of nature." From today's vantage point, the production of nature seems almost obvious, having become a central political issue. This theme, which launched the original text, seems the obvious place to start.

Nature-washing and the Production of Nature

Although the environmental movement was in full swing, it would have been difficult in the early 1980s to anticipate the extent to which some broad acceptance of the "production of nature" thesis—or whatever language we want to use—would become not just radical orthodoxy but the stuff of front-page headlines. Global warming and humanly induced climate change are no longer scarehead slogans of the environmental left but the bread, butter, and martini lunches of Wall Street boardrooms. Granola green is supplanted by dollar green. Indeed the production of nature has become in some respects *the* capitalist orthodoxy; climate change has been converted from a threat on profits to a new sector of capitalist profitability. Sufficiently so that by 2003 the

Pentagon, in collaboration with the U.S.-based Global Business Network, could warn about the effects of climatic change on "U.S. security" and advance a multibillion dollar program for climate security.

But the issue is not quite this simple. There seems to be no reasonable scientific basis on which to deny that global warming is taking place and that intensifying social economies of production, reproduction, and consumption contribute to that result. Quite the extent of this global social contribution to climatic change, however, is not at all clear, and may well be incalculable. The problem is that to calculate such a responsibility requires assuming either a static nature against which global warming can be definitively measured—a demonstrably unrealistic scientific assumption—or else assuming some trajectory of "natural" change (but how is that projected future to be assumed?) against which some human component might be measured. There are of course sophisticated models of cyclic global climate change based on data that reaches back to the nineteenth century (however geographically selective), but accuracy in describing the past never guarantees one's predictions for the future. In the end, the attempt to distinguish social vis-à-vis natural contributions to climate change is not only a fool's debate but a fool's philosophy: it leaves sacrosanct the chasm between nature and society—nature in one corner, society in the other—which is precisely the shibboleth of modern western thought that the "production of nature" thesis sought to corrode.

One does not have to be a "global warming denier"—an interesting descriptor in itself—to be a skeptic concerning the ways that a global public is being stampeded into accepting wave upon wave of technical, economic, and social change, framed as necessary for immediate planetary survival. As part of a more comprehensive revival of a bankrupt geographical determinism, global warming has become a convenient excuse for any number of social sins. Beyond the obvious implications of melting ice caps, rising sea levels, shifting climate and vegetation belts, flooded cities, and so forth, global warming can be summoned to exonerate many social sins: increased summer crime in hot cities, crop failures, new migration patterns, record summer heat in southeastern Europe,

record rain and cold in northwestern Europe, a 35 percent reduction in species diversity by 2050, unprecedented increase in feline fertility in Toronto. . . . The apocalyptic tone of imminent environmental doom suffuses virtually every aspect of daily life, present and future.

Much as corporate "greenwashing" in the 1990s absorbed green politics, recoding environmentalism to the purpose of capitalist profit, the specter of global warming and of climate change is today deployed on behalf of a certain "*nature-washing*." This may seem paradoxical. Nature-washing is the process by which social transformations of nature are well enough acknowledged, but in which that socially changed nature becomes a new super determinant of our social fate. It might well be society's fault for changing nature, but it is the consequent power of that nature that brings on the apocalypse. The causal power of nature is not compromised but would seem to be augmented by social injections into that nature. The dichotomy of nature and society is maintained rather than weakened: "nature-washing" accumulates a mountain of social effects into the causal dustbin of nature. Nature is the still far-off Van Diemen's Land of social cause and consequence.

If today's environmental news is dominated by climate change, nature-washing has a broader sweep. With little sense of what was coming, the first edition of *Uneven Development* did include the merest mention to the "greenhouse effect," as it was then called, but the argument about the production of nature was more broadly rooted, a point that is in danger of being lost in the resurgence of geographical determinism that stokes the new nature-washing. We find ourselves today constantly exhorted that one or another environmental emergency threatens the planet, and life on it, emergencies with a biophysical, biochemical fingerprint: the Ebola virus, AIDS, mad cow disease, SARS, multiplying forms of cancer, avian flu. Here too nature-washing does its work, as social coproductions of disease (whether widely recognized or otherwise) are sidelined in favor of the seeming apocalypse of an inexorable nature. Again, the point is not that nature-washing disavows the social involvement in nature; rather, in acknowledging it, nature-washing

reconstructs the apparently unassailable power of natural agency over and above the social.

While the "production of nature" thesis certainly stresses the veins of social agency that run through nature, it is not in any way assimilable to, or to be confused with, the constructionist paradigm that has become fashionable since the 1980s. Unsettled by the political implications of a focus on social production, but presumably responding to many of the same kinds of social shifts, some theorists have adopted a social constructionism anchored in the privileging of discourse. This creates its own kind of nature-washing in which the power of nature is discursively washed away or at least washed to the margins. This could hardly have been clearer than in the 1995 *Social Text* fiasco in which a scientist hoaxed that cultural politics journal with an entirely invented "constructionist" reading of contemporary physics. Whatever our necessary critiques of scientific conceptions of the world—and young scientists are often much more astute at this than those parrying from a distance—a discursive constructionism does not lead far. There is of course much debate on these issues, and the question of how to conceptualize nature-society relations is not and will not easily be solved in theory. I remain convinced that the crucial question is less how to recombine our understandings of nature and society, a project at best geared to attempts to repair a rapacious capitalism, but rather the opposite: how could such a unified, if internally differentiated field, of nature-society relations, processes, and events come to be conceived in the first place as such a stark duality? This project requires reading the history of myriad practical productions of nature, over the last few centuries, through the evolution of western conceptions of nature. For the moment, a notion of the production of nature, which puts transformative human labor in its broadest sense at the center of the equation, works passably well, sympathetic I think with Donna Haraway's notion of the coproduction of social and natural process and relations. Nature-washing, by contrast, re-consigns responsibility to nature.

The point is most certainly not to diminish the extent of environmental crisis generated by a voracious capitalist consumption of the earth's

resources, and nor is it to suggest that environmental issues are somehow secondary or that they require little or limited attention. Precisely the opposite. Rather, the point is to insist that responses to environmental crises are more likely to be successful to the extent that this crisis is accurately assessed. Here a left apocalypticism seriously misses the target. Insofar as global warming as a process is taken in isolation as the central environmental dilemma—and is thereby extracted from the processes of capital accumulation and the social relations of production which significantly provoke such climate change—the dynamics leading to global warming fall out of focus. "All hands on deck to reduce the carbon footprint" may salve the liberal conscience, but it is not an especially progressive political response to global warming insofar as it misconceives nature in narrowly use-value terms; in locating the solution in a diffuse voluntarism—have you planted a tree today to offset your drive to work?—it also implicitly supposes a diffuse responsibility and causation for the problem. This gets us only so far toward understanding the causes of global warming. Most of us do not have a choice but to consume some modicum of hydrocarbon fuels for travel, heating, cooking, electricity, and so forth—not because we choose to but because alternatives are prohibitively expensive or simply impossible. The lack of alternatives is anything but voluntaristic, driven instead by calculations of competitive profitability. Apocalypticism meets liberalism where the entire realm of value and exchange-value is left aside, and the resultant solutions to very real problems entirely fail to tackle the drive toward capital accumulation which, more than anything else, is responsible for producing the use-value landscape of global warming and environmental crisis more broadly.

In response to climate change, the production of nature has deepened in ways that would have been unpredictable in the early 1980s. It was already obvious then that the emerging "organic foods" industry and the recycling industry were corporatizing popular responses to the perceived environmental problems of the 1960s and 1970s, and a burgeoning sector of environmental industries has followed suit. A good case can actually be made that the recycling industry, by enlisting

the free labor of consumers as well as government subsidies has simply provided cheaper recycled raw materials to the culprit industries, thus giving them an incentive to produce even greater quantities of trash. Whatever the debatable pros and cons of these industries, however, it is apparent several decades later that the response to climate change is following the same trajectory. The concern with climate change is corporatized in various ways. Oil companies, drilling furiously into wildernesses, deserts, and oceans around the world, advertise themselves as "green"; airlines employing profitable fuel saving technologies call themselves carbon friendly; and nuclear powered electricity is back on the agenda as "the clean alternative." A global market in carbon sequestration, wherein carbon offsets become themselves a commodity, opened up in the 1990s and by 2007 it represented a multibillion-dollar business, and on this basis an entire environmental futures, securities, and derivatives market is exploding. Nature here is not only commodified but financialized—in order of course to save it. Nothing in nature is spared such a saving: in one case, a paper company "pays" for its timber extraction by creating "woodpecker futures" attached to uncut acreage, and makes a considerable profit when the price of such futures goes up. To take another example, utility companies have built a market allowing them (and anyone else) to hedge their bets against unusually cold (or warm) winters, or unusually hot (or cool) summers by buying weather futures—essentially gambling on the weather. More extraordinary perhaps, there are attempts to use the pattern of purchases and sales on the weather futures market to predict the future of the weather itself. Talk about the idealism of social constructionism!

That carbon sequestration markets may not reduce carbon outputs, or that carbon-saving technologies may actually lead to an increase in overall carbon emissions should not really surprise us, although the backward logic behind market-based weather forecasting does stretch credibility. (It should be noted that in 2004, before it was laughed out of existence, a similar "security futures" market was briefly mooted by the Pentagon, in which the public could bet on the place and timing of the next "terrorist

attack." As Pentagon officials put it, they were "harvesting" information on the pretext that market spikes would reflect actual knowledge of planned attacks.) An environmental politics that fails to grasp the depth and implications of such a marketization of nature—the extraordinarily creative ways in which corporate capitalism manages to reframe a genuinely use-value concern, such as reducing carbon emissions, into a question of economic value that is entirely inimical to the original concern—such an environmental politics remains stuck in a previous era. To put it bluntly, today nature is busily being lined up as an accumulation strategy in ways that were inconceivable two or three decades ago.

The argument about the production of nature clearly drew theoretical inspiration from Henri Lefebvre's proposal that we begin to think in terms of the "production of space." As is now well understood, Lefebvre thereby brilliantly overturned two or three centuries of western thought by rendering space not as an abstraction—a Newtonian absolute, or a Cartesian field—but rather as a malleable artifact. This takes us back at the very least to the debates between Newton and Leibniz, as David Harvey has pointed out, but it also sharpens our focus on the prospect, suggested above, of exploring the connection between the histories of nature (and space) and the history of the concepts of nature (and space) since the seventeenth century. The bracketing of "space" here is both deliberate and problematic, but also symptomatic of something in Lefebvre himself. For much as Lefebvre broke with the past as regards space, he remained curiously traditional as regards nature. Whereas he provides an excellent launching pad for analyzing the history of space twinned with its modern conceptualization, his treatment of nature falls, quite literally, flat. Space for Lefebvre remains alive, despite its tendential but never fulfilled abstraction at the hands of capitalist production; indeed his entire point in this work is that a truly revolutionary politics is, perforce, a politics of space. By contrast, for Lefebvre, the politics of nature are the politics of abject defeat. Nature he says is "dying," it is "disappearing," expunged at the hands of capital: "nature is being murdered by anti-nature—by abstraction, by signs and images, by discourse, as also by labour and its

products. Along with God, nature is dying. Humanity is killing both of them—and perhaps committing suicide into the bargain."

There is a lot going on in this vignette, but it seems reasonable to conclude that in one respect at least Lefebvre here falls back into his own time. He welds a nineteenth-century evolutionary sense of the progressive colonization of nature with a 1960s environmental-movement outrage about the deadly consequences. Enough of Kant survives that while the Newtonian absolutism of space is long vanquished (and yet isn't, insofar as all politics become the politics of space), the ontological priority of space over nature remains intact. Nature still "takes place" within space, even if in trying to do so it is fighting a losing battle and its own prerogative recedes toward death. What if, however, we complete the overthrow of Kant, in this regard, reverse the privilege, and see nature not space (and time) as a priori? What if we see space as the product of nature, a nature that is itself more and more intensely produced, still very much alive, nature as a continuum of human and non-human events and processes? Although it was not quite expressed in such a way, this was the impetus behind the "production of nature" thesis.

Lefebvre may well not have objected to such a move. It in no way implies the deadening of space—that should go without saying. Rather it would raise nature to the level accorded to space by Lefebvre. It would force us to examine more rigorously the geo-historical dialectic between the coproductions of nature and space. This would have the effect of putting the politics of nature at the center of any transformative political agenda, entwined with the politics of space, while at the same time eschewing any facile constructionism. We could probably do worse than begin by rethinking this production of nature through the triad Lefebvre himself initially applied to the production of space. That project was very much guided by an ambition to reunite, under the aegis of social production, what he identified as physical, mental, and social space. What would such a project look like for nature? How would we rethink the connectedness of physical nature, mental nature, and social nature? And how would this allow us a more replete conceptual suture of space

with nature? These are more than conceptual questions, however. As the evidence on climatic change mounts up it is increasingly clear that the effects will be highly uneven spatially. Higher temperatures in one place may well be matched by lower temperatures elsewhere, drought here by deluge there, species decline in one environment by species explosion elsewhere. How are we to conceptualize the unevenness of natural change as integral to uneven spatial development?

Uneven Development: Flat World, Impossible World

In his best-selling 2005 book, *The World Is Flat*, Pulitzer Prize–winner Thomas L. Friedman expounds on a revelation he had on the first tee at the Karnataka Golf Association links in downtown Bangalore, "India's Silicon Valley." Having recently disembarked from a Lufthansa business-class flight from New York, surrounded by a landscape of skyscrapers, signs, and logos projecting corporate globalism—Goldman Sachs and Pizza Hut, Hewlett Packard and Texas Instruments, Microsoft and IBM—and with Indian golf partners he felt might as well be Americans, the *New York Times* columnist came to a sudden realization: "Honey," he later explained to his wife, "I think the world is flat." The brilliance of Friedman's book, which spent more than two years on the *New York Times* best-seller list and has sold over 3 million copies, is its vivid portrayal of the promise of free-trade globalization as accomplished fact. As expressed by capitalists and economists, the promise was that globalization brought a "level playing field," and now Friedman's folksy analysis and globe-trotting observations rallied to ratify that promise, to demonstrate the promise as "facts on the ground." Framed around a personal starburst of business-class travels, with and without his family, the book jaunts us across the world introducing myriad human and non-human ciphers of the new globalism, explaining en route everything from software to outsourcing, supply chains to Wal-Mart. It trumpets the generative neoliberal power of the U.S. economy in that brave new flat world while issuing sonorous warnings about the need for constant competitive vigilance. For Friedman,

"Globalization 3.0" not only promises but has largely brought to fruition nothing less than the end of geography.

Friedman expresses vividly the tendency within capitalism toward the equalization of conditions and levels of social production and reproduction. "Capital," as Marx famously said, "is a leveler." Or as he and Engels put it earlier in the *Communist Manifesto*:

> The need of a constantly expanding market for its products chases the bourgeoisie over the whole surface of the globe. It must nestle everywhere, settle everywhere, establish connections everywhere. The bourgeoisie has through its exploitation of the world market given a cosmopolitan character to production and consumption in every country. . . . In place of the old local and national seclusion and self-sufficiency, we have intercourse in every direction, universal inter-dependence of nations. And as in material so also in intellectual production. The intellectual creations of individual nations become common property. National one-sidedness and narrow-mindedness become more and more impossible, and from the numerous national and local literatures there arises a world literature. . . .
>
> The cheap price of commodities are the heavy artillery with which [the bourgeoisie] batters down all Chinese walls. . . . In one word, it creates a world after its own image.

Friedman's book advances this class project. Indeed, translated into numerous languages including Chinese (Mandarin), Japanese, and Indonesian, it is itself an exemplar of "world literature," part of the intellectual "artillery" breaking down geographical borders. If "all that is solid melts into air," as Marx and Engels argued, the life-sustaining oxygen of that globalized air is the worldwide pursuit of capitalist profit. As regards the production of nature, this means that unlike in Marx's and Engels' times, the exploitation of nature is not only a matter of expanding horizontally the search for raw materials but expanding that search vertically. The issue is not simply geophysical—searching for new resources under the earth's surface or in extra-planetary space—rather it is scalar. The biopiratic corporate ransacking of rainforests, ocean deeps, and

human bodies for genetic material, combined with the financialization of carbon credits and myriad other environmental credits, suggests a world in which nature is rendered a powerful accumulation strategy, a biodiversity bank, all the way down. Nature is no longer natural, as it were, for all that natural processes continue entirely unabated.

The tendency toward the equalization of conditions and levels of production is a central plank of uneven capitalist development. Elsewhere Marx captured this as a tendency toward the "annihilation of space by time," endemic to capitalism, and this became a central theme in uneven development theory. More recently Deleuze and Guattari wrote of smooth space, and have explored the question of deterritorialization, albeit in far more abstracted, philosophical terms than the contemporaneous discussions of economic geographers and political economists. In any case, Friedman is unlikely to disagree that his "flat ontologies" are the direct expression of capital accumulation, the spatialized ambition of capital. Indeed, Friedman cites the *Communist Manifesto* finding it "hard to believe" that Marx could have been so prescient as far back as the mid-nineteenth century. Nor is Friedman's appreciation for Marx isolated. In the late 1990s, with the 150th anniversary of the *Communist Manifesto* upon them, and with a post–cold war sense that Marx and his troublesome children had finally been tamed, and economic crises too, even Wall Street capitalists began to rediscover and appreciate the brilliance of Marx and his astute diagnosis of the workings of capitalism. Gushing rediscoveries appeared everywhere from the *London Times* to the *Wall Street Journal*. But they proved short lived as the rapacious Asian economic crisis of 1997–98 cut too close to the bone, causing an embarrassed truncation of the Marx revival and a return to official silence concerning his insights on capitalist crises. That this crisis is even referred to as the "Asian" economic crisis—or worse, an "Asian economic flu" threatening "contagion" to Europe and North America—betrays the *un*flatness of the earth, the sudden shattering of any putative global equality, and the strenuous efforts of New York, Tokyo, and London globalizers to de-globalize and to decouple that crisis from the centers of financial power. Ten years later as we recall

crises from Thailand and Indonesia from that era, we also recall that the Russian and Brazilian economies were major casualties of the "Asian" crisis. More to the point, the 1997–98 global economic crisis quickly eclipsed Marx because that crisis epitomized the dialectical "other" of capitalist development: against equalization capital accumulation exerts an equally powerful force for social and spatial differentiation—crisis, disruption, unemployment, spatialized impoverishment, war.

This other side of the capitalist coin goes largely unrecognized by Friedman, his use of Marx at best one-sided. That he can admire Marx only after this personified bane of capitalism is thought to be vanquished is evident from the audacious subtitle of his book: "a brief history of the twenty-first century." The Marx that Friedman misses is the Marx of crisis theory, the division of labor, social class, death by poverty, and the excoriating critique of self-fulfilling capitalist fantasies that competition, private property, and politically sanctioned and orchestrated class greed will somehow lead to a better world for all. He entirely erases the Marx who posited deep-seated forces of social differentiation as crucial for the workings and survival of capitalism, tendencies entirely counter to those of equalization. This may be because Friedman is a self-confessed technological determinist who has faith that technology can conquer all social ills and that class is a "state of mind." That state of mind may be inveigling from thirty-five thousand feet in amply pampered business class; the world assuredly looks flat from that altitude when one can afford the ticket to fly around it at will. But for the denizens below, whether in the Zimbabwe highlands or the Bangladeshi deltas, the price of such a ticket is many times the annual income, and the New York lifestyle of multimillion-dollar apartments and $7,000 monthly rents for even a one-bedroom apartment looks like an impossible mountain to climb. For them, New York is an Everest away.

In a brief interlude Friedman does acknowledge that the world is not yet entirely flat but insists that the forces of flattening should prevail. He is all for poverty alleviation and to help make it so he supports the Gates Foundation, built on the Microsoft fortune, for whom the charity slogan

is: "Let's collaborate horizontally." Such an effacement of any verticality of power is convenient and self-serving, given the power of Microsoft's own capital stock, and Friedman's endorsement of the Gates version of a flat ontology effectively smoothes out global inequality. In practice, uneven geographical development results from a dialectic of opposing tendencies toward equalization and differentiation

China is the new capitalist miracle of the neoliberal era. That the nation which many conservatives insist on calling "communist China" is already beating out capitalist America at its own game has brought a lot of hand-wringing—nowhere are the dynamics of uneven development more visible. Indisputably a Third World country in the language of the 1970s, China by 2005 was the fourth largest economy in the world and is poised to supersede Germany for third place. Between 1980 and 2005 its gross domestic product (GDP) increased by a factor of ten from $187 billion to $1.938 trillion. At the global scale there could not be any better example of how previously underdeveloped economies can catapult themselves into the forefront of capitalist development. The immediate cause of China's massive economic expansion lies in the 1978 neoliberal reforms applied to the economy by Deng Xiaoping. These reforms were all-embracing, covering agriculture, industry, science, education, and defense, and they opened many state enterprises to competition, market pricing, and eventually private ownership. Land and housing markets were also created, while the state continued to steer infrastructural development, and a massive expansion of industrial exports was paralleled by the creation of a vast and growing domestic market. In addition to internal reforms, the emergence of China as a global economic power was encouraged by the simultaneous neoliberalization of the U.S. and U.K. economies, and by the industrial expansion that had been sweeping East and Southeast Asia since the late 1960s. In addition to Japan and China, South Korea now figures among the top twelve economies in the world. China is increasingly a destination for global finance capital investment while Chinese investors (including the government) hold more than a trillion dollars of U.S. government debt. It is becoming increasingly evident

that, taken together, the East Asian industrial revolution since the 1960s dwarfs all such preceding revolutions. In this respect at least, the rise of these economies represents a considerable equalization of conditions and levels of development especially between East Asia and the older economic powerhouses of Europe and North America.

And yet this economic expansion has been costly as the level of internal inequality has exploded. Whereas inequality in China in 1980 was comparable to that of social democratic Germany (Gini coefficient = 0.25), by 2005 it was less equal than Russia (Gini coefficient = 0.45). The wealthiest 10 percent of the Chinese population earned seven times that of the poorest 10 percent in the 1980s but by 2005 that inequality had risen to a factor of 18. The richest 10 percent of the population now accounts for 45 percent of the country's wealth, the poorest 10 percent only 1.4 percent. This widened socioeconomic differentiation, attendant on the intensified capitalization of the economy, is expressed in geographical inequality at various scales—intra-urban, urban-rural, and regional. In keeping with its socialist commitment to equality, the Maoist revolution of 1949 placed a high premium on encouraging "even" development, going so far as to dismantle machinery in Shanghai and other cities and re-establish it in the countryside, but that is now ancient history. Capitalist industrialization focused first and most intensely on the southeast around Guangzhou, the Pearl River Delta, and Hong Kong, tipping the scales of economic power away from the northeast, but later investment and development in the north bolstered the power of the entire coastal east against the central and western regions of China. Yet the latter regions have also experienced investment, especially in infrastructure, resources, and primary commodities. Internationally, Chinese capital investment has flooded into South America and, to a lesser extent, Africa, as well as the closer economies of Asia. At the urban scale, Shanghai and Beijing are now among the largest metropolitan areas in the world and may well be taken as cutting-edge paradigms of neoliberal urbanism. New urban wealth is increasingly concentrated in rich enclaves, suburbs, and shopping malls, while gigantic urban renewal projects—not least the 2008 Olympics in Beijing

and the 2010 World Expo in Shanghai—evict the poor from entire neighborhoods on a stunning scale. Hundreds of thousands of working-class residents have been displaced—some relocated, many not—by large-scale gentrification, infrastructure, and related projects.

None of this has happened smoothly. The same ruthlessness that accompanied the English industrial revolution, the same Dickensian conditions, characterize the Asian industrial revolution. Demonstrations have met many of the urban projects. Violent demonstrations have also followed an epidemic of coal mine disasters—4,746 miners killed in 2006 alone—and the breakup or privatization of work units in the countryside has provoked widespread protest. Repressive work conditions in the country's burgeoning factories, together with suppressed wage increases, have also fomented pervasive unrest. Reports of these revolts rarely reach the western press, or indeed the Chinese press, but in 2005 the Chinese government conceded that an estimated seventy-four thousand "mass incidents, or demonstrations and riots" occurred the previous year, presumably making China the world's class-struggle capital. China's new ruling class, comprising new entrepreneurs as well as old party leaders, has a powerful hand on the tiller of state and economy alike, careening toward the predictable rescripting of Lenin, namely that capitalism is the highest stage of communism.

The situation as regards India is the same and yet very different. The neoliberalization of the Indian economy did not come until the mid-1990s and it has not enjoyed quite the extreme growth of China, but it has nevertheless averaged more than 6 percent growth in GDP per annum over the last two decades, growing to almost 10 percent between 2000 and 2005. India has now superseded South Korea in terms of total GDP. Much of the growth has focused on the globally connected financial hub of Mumbai, which now hosts major corporate offices for all of the world's largest banks, securities firms, and financial corporations. But it also focuses on the hi-tech center of Bangalore, and the administrative center of Delhi, and industrial production in these and other metropolitan regions is also being dispersed into surrounding countrysides.

There are many reasons for the rapid expansion of the Indian as well as the Chinese economy and traditional accounts place emphasis on telecommunications, cheapening transportation, and computer technology. These have all undoubtedly facilitated the movement of goods, capital, ideas, images, even labor across previously unassailable distances, but Asian development since the 1960s is fundamentally premised on the disparity of wage rates vis-à-vis Japan, North America, and Europe.

With an education system that for many recipients is superior to that of public schooling in New York or Los Angeles, a city like Bangalore, now 6 million strong, offered a plentiful supply of English-speaking, scientifically literate, business-savvy workers at far lower wages. Once captured by the British—not coincidentally at the high point of the industrial revolution at home—Bangalore's current growth was spurred in part by post-independence governmental decisions to centralize aircraft and electronic industries in the city during the 1950s and 1960s. With further investment it was poised uniquely to make the best of the neoliberal reforms of the 1990s. By 2007, a science graduate looking for a beginning software engineering job at the sprawling corporate campus of Infosys, India's largest IT company, could expect an annual salary approaching three hundred thousand rupees ($7,400) per year, a huge sum in India but a small fraction of the Silicon Valley wage rate. Infosys co-chairman Nandan Nilekani was the golf partner who by all accounts prompted Friedman's flat earth revelation.

India boasts more billionaires than any other Asian country, its richest 10 percent commands almost 30 percent of the national income, and the wealthiest 0.1 percent are the major beneficiaries of the 1990s neoliberalization. But poverty in India is also arguably deeper and broader than in China. More than a third of the population lives on less than one dollar per day and 80 percent on less than two dollars. Many workers making expensive fashion items for the European and North American markets or food products for the same, supplying the Gap and Marks & Spencer, Wal-Mart and Tesco, are earning barely twenty-five cents an hour while their employers abrogate international labor laws. This has

led to widespread labor revolt, albeit not on the scale of China, a labor unrest that has spilled into the burgeoning domestic consumption market. Thus the anti-Wal-Mart campaign, becoming as global as its nemesis, is actively trying to prevent the expansion of the Arkansas-based firm (in a joint venture with the Bharti Group) into fifteen new store sites throughout India. While Bangalore, at the cutting edge of the global hi-tech economy, has not been a hotbed of labor revolt, protests have broken out around the country not just about work conditions but about environmental issues, state repression, and urban displacement resulting from slum clearance, gentrification, and informal settlement removal. In the countryside, where a concatenation of market, political, and environmental conditions have ruined many agricultural workers, tens of thousands of small farmers have committed suicide. In more isolated indigenous ("tribal") areas throughout much of the country, widespread Maoist agitation has displaced the authority of the Indian state.

Economic crisis is an integral part of uneven capitalist development. Worker organization and state responses have increased wage rates in the "tiger" economies of Asia—Singapore, Taiwan, Hong Kong, and South Korea—and these have long since surpassed those of other Asian economies, forcing a restructuring toward more intense, productive jobs yielding higher amounts of surplus value. The same dilemma already beckons for China and India. In the economic crisis of 1997–98, global capitalists behaved in ways designed to isolate the catastrophic devaluation in some places—Brazil, Russia, and Asia, including the tiger economies—while protecting value elsewhere. Over the longer term—a decade perhaps—they largely succeeded, yet the designated victim economies rebounded too. But as economic crises go, they also come. And in the next episodic moment of crisis, so well explained in Marx's work yet so allergically disavowed by utopian economists of the capitalist persuasion, the geography of crisis, decline, unemployment, and death will again be geographically uneven. Whether China or India are the losers in this unfolding drama or indeed the tiger economies again, whether the property-based U.S. heartland of early twenty-first-century

capitalism becomes the victim of its own success in a spreading financial crisis since 2007, whether Europe recedes under the weight of its own expansion, or whether the new suburbs of global capital in Dubai and the Gulf States will face crisis requiring the repatriation of hundreds of thousands of South and Southeast Asian workers—none of this is easy to predict. Predictable, however, is that the poorest classes in all these places—workers, women, national, ethnic and racial minorities—will be the victims.

The Rise of Geoeconomics

Neoliberal globalism has changed the world, we are constantly told, but if anything neoliberalism has reasserted the fundamentals of liberal capitalism. It has done this not so much by eliminating the state and state regulation, as is commonly lamented. Rather, while many states have variously unhitched themselves from responsibility for the social reproduction of their national populations, they have selectively rendered the state apparatus as its own entrepreneurial entity, a purer catalyst of capitalist expansion than ever before. This is nowhere clearer than with the U.S. military which brokers arms sales for sake of corporate and Pentagon profit and which went to war in Iraq with roughly equal numbers of soldiers and private mercenaries ("independent contractors"). Contrary to the nostrums of globalization theorists and indeed many anti-globalization activists, the state is not erased by the new global realities; rather, from Britain to Mexico, China to the United States, national states were in many ways the midwives of that globalism, and whether via economic policy or military adventurism they exploit the new globalism as a means to enhance state power. In any case, as the military and political response to September 11, 2001, makes clear, any erosion of state power at the hands of globalization was distinctly limited. The undeniable erosion of economic borders is not necessarily matched by any erosion in the political, cultural, or certainly military borders between nation-states. If anything, these have hardened in many places. Yet this does not mean that globalization is old news and nothing has changed.

The map of the world in the twentieth century was, first and foremost, a geopolitical tableau of national territories without which defining moments such as World War I or World War II or the cold war, spanning most of the century, would be incomprehensible. Many other economic, social, and cultural landscapes suffused that map, of course, but today, national state power notwithstanding, the world map does not register such a crisp articulation between power, state, and territory. The geopolitical board game *Risk,* which seemed to capture the aura of the 1970s and 1980s, now seems strangely anachronistic. The entire global jigsaw puzzle of national states has effectively been thrown in the air, and globalization aficionados and anti-capitalist critics alike are left to put the pieces back together again. The problem is that the largely national pieces that went up are not the same as those coming down. From Europe to Africa, states have broken up while at the same time continental-scale trade units—Mercosur, AESEAN, the European Union, NAFTA, not to mention the military apparatus of NATO—have come to the fore. Today's world map is more one of environmental and religious difference, migration patterns and economic flows, local irruptions and postcolonial wars than a stable mosaic of national states.

These shifts are complex but through the lens of uneven development theory, and with an eye especially on issues of scale, one central dynamic stands out. By the 1970s, the scale of capital accumulation in the world's wealthiest economies had outstripped the ability of these national states to regulate domestic economic activity. Economic activity increasingly spilled over and across national boundaries, calling for national deregulation and international regulation. By the 1980s, the vast majority of economic trade across national borders was intra-firm, that is, it took place *within* corporations; the very idea of distinct national economies was increasingly a misnomer. The possibility of a globally integrated capitalism had certainly been anticipated before; Woodrow Wilson's proposal of a "global Monroe Doctrine" after World War I probably marked the first viable statement of a U.S. global (as opposed to continental) ambition, but it was defeated by domestic and foreign

opposition and by a reactionary nationalism at home. A second attempt came with the establishment of the United Nations and especially the World Bank, International Monetary Fund, and GATT (later the World Trade Organization) at the end of World War II, but it was frustrated in turn by a cold war that also drew on a regressive and self-defeating nationalism. Long dormant, those World War II institutions sprang to life after the 1970s as a third moment of U.S. global ambition loomed. Reinvented as neoliberalism, and as a solution to the crises of the 1970s that were featured in the first edition of this book, this new U.S. gambit for global power received a significant fillip from the end of the cold war, but was by no means coterminous with an Americanization project. It was a class project which tied ruling groups from Washington to Pretoria, Shanghai to Mexico City into a common interest, even as they squabbled over how to compete with each other. By the same token, it increasingly linked textile workers in Dacca, Bangladesh, with those in New York, banana pickers in the Caribbean with unions in Europe. Victories for the labor movement since the 1980s were far outnumbered by defeats, yet international rather than national organizing is now increasingly the norm, and together with an episodic antiwar movement and the various threads of the global social justice movement, they have at least succeeded in making neoliberalism and globalization the targets of sharp critical attention, protest, and political opposition.

Uneven development at the global scale has been matched by extraordinary social and geographical unevenness within national economies. Not just in the rising economies such as China and India but in the heartland of twentieth-century capitalism, economic inequality has become increasingly intense. The United States has always harbored great social inequality, but in the quarter century after World War II this inequality remained comparatively stable, even abating at times. By the early 1970s, however, socioeconomic inequality intensified rapidly. While workers' wages have remained constant or even declined over the last four decades, the incomes of the highest earning 1 percent have tripled in the same period. The Gini coefficient of inequality measured

0.35 in 1970, but rose steadily to 0.47 by 2001, higher than in Russia, China, or India. The pay of chief executive officers (CEOs) in 1982 in the United States was 42 times that of wage workers, but over the next quarter century it has risen to an astonishing ratio of 364:1. In 2006, four CEOs in the rarified equity and hedge fund companies took home an *income* of over $1 billion while the top twenty such CEOs averaged $658 million each—a cool $2.75 million per working day of the year. The unequal share of wealth (rather than income) is even more intense, having returned to pre–World War II levels. The geography of all this is partly predictable but partly not. While the southern tier from Texas to Florida has the highest levels of inequality, these states are joined by California and the Northeast, and it is in these latter areas, together with parts of the Midwest, that inequality is growing most intensely.

At the urban scale, the gentrification which in the early 1980s was still an emergent phenomenon, has become a global urban strategy. It is no longer just the Londons and Sydneys, New Yorks and Amsterdams that experience such dramatic reinvestment at the center, but cities around the world. Gentrification has burgeoned horizontally, affecting cities on all continents (except presumably Antarctica), but also vertically, reaching into cities further down the urban hierarchy. Gentrification has moved from an isolated event in select housing markets to a pervasive plank of urban planning policy. When combined with the global suburbanization of cities, this makes Henri Lefebvre's prognostication of 1970 that urbanization now supplants industrialization as the engine of social change look prescient. City building has become a motive geographical force of capital accumulation, a source of massive surplus value production. The financial command and control functions of the global economy may still be concentrated in New York, Tokyo, and London, but the new global cities of Asia and Latin America and now increasingly Africa are very much the workshops of global capital. Global urbanism is a highly contradictory process, also centrally fuelled by a rural-urban migration sustaining the industrialization, and according to the United Nations 2006 became the first year in which the world's urban population exceeded 50

percent. Gentrification centralizes the city; suburbanization decentralizes it; rural-urban migration recentralizes the metropolis: all of this calls out for a scaled analysis of uneven urban development in a global world.

In a scale-bending mode, it is worth contrasting worlds that are not usually cast up for comparison. It is stunning to discover, for example, that the endowment of a single U.S. university (Harvard)—not their operating budget but the money they have in the bank—equaled more than $35 billion in 2007. Indeed the university's highest paid employee, by far, was neither the president nor the football coach but the endowment manager, whose salary topped $18 million. (He resigned to seek higher pay.) The endowment does not even begin to capture the university's true worth insofar as it excludes assets, such as land and buildings, as well as its capital and operating budgets. Yet by latest count, the endowment alone exceeds the GDP of some thirty-nine countries; it would be sufficient to pay off the entire national debt of South Africa or Peru. As anti-gentrification activists claimed of Columbia University in the 1980s, major U.S. universities are actually now multibillion-dollar, multinational corporations with major interests in the global equity markets and in local real estate development which also happen to give out degrees every May. To take another example the U.S. military, with a 2008 budget approaching $750 billion, vies with Australia as the fifteenth largest economy in the world.

If taken over by right-wing commentators such as Edward Luttwak by 1990, the language of geoeconomics seems first to have been coined by a French regional geographer in the 1950s, and it was current among marxist geographers looking at the 1970s restructuring of global political economics. It was a prescient insight. The point is not that geopolitics is somehow obsolete—one look at newspaper headlines and a glance at U.S. behavior in the Middle East would assuage any such concern. Rather, however much geopolitics remains a tactical arsenal for global conflict—and the Israel-Palestine-Syria-Iraq-Iran nexus is a superb example—the underlying rationale for conflict today increasingly conforms to a geoeconomic more than geopolitical logic. This is not to say that

war in Iraq, or more broadly in the Middle East, has been simply about oil. Such an assumption represents an elemental mistake by the political left, assuming a geopolitical as much as geoeconomic rationale. Rather, war in the Middle East is very much about completing the strategy of globalization by attempting to bring the last major recalcitrant region into line with U.S. global ambition. That most of the world's oil supplies lie there is not at all coincidental, but it is not the only, and probably not even the central, question. To the extent that the political left sees Middle East strife as a war for oil, it remains stuck in an obsolescent geopolitical mindset. Having said this, it seems clear that as we head into the second decade of the twenty-first century, geopolitical calculation is likely to be very much on the front page of newspapers, perhaps as testimony to the failure of the third moment—after Wilson, after Roosevelt—in the U.S. ambition to get beyond geography and create a flat global world.

Geopolitics, and the resort to a largely self-inflicted nationalism, were the downfall of global ambition in these earlier moments and they seem on track to repeat the fiasco. Quite how that undoing will happen is not clear but the 2007 crisis in the global financial markets of the United States and Europe, rooted appropriately in a long history of speculative mortgage investments, suggests that the crisis of 1997–98 has migrated economically and geographically. That crisis manifested itself first in the overproduction of semiconductors in Thailand, eventually effecting the value of Thai currency, the baht, and spreading from there. Ten years later, the crisis seems to emanate from the belly of the beast, its most cherished right, the U.S. mortgage. That it has not remained in the mortgage sector but become generalized is precisely the nature of a globalized capitalism. And that powerful state intervention, up to and including bank nationalization, was required to deal with the crisis, completely contradicts the dogmas of neoliberalism.

Jürgen Habermas once observed that modernism was "dominant but dead." The same may be true in economic terms with the Iraq war marking the failed "endgame of globalization." Following the battle of Seattle in 1999 and subsequent anti-globalization and anti-capitalist protests,

which helped establish extraordinary repressive reaction by the state as normal, and following the economic stagnation and recession some years later, neoliberalism ceased to be the source of significant social change. At best, the end of the first decade of the twenty-first century has seen the filling in of established neoliberal political and geographical terrains; less charitably, the period marked a crisis of neoliberalism. Neoliberalism has run out of what George Bush Sr. in the 1980s called "the vision thing." Per Habermas, neoliberalism may now be dominant but dead.

A neoliberalism in crisis will not bring an end to uneven development but its opposite, an intensification. As Marx long ago observed, capitalism is marvelously resourceful at transforming itself in the face of crisis, and it has to be said that since the 1970s it is capitalism and not its opponents who have had the overwhelming initiative. That may no longer be true. Future patterns and experiences of uneven development very much depend on the extent to which an opposition to capitalism can develop its own version of the "vision thing." Yet in many parts of the world, we seem today to be unable to conceive of social revolt and the possibilities it might bring. As Donna Haraway, one of our most creative thinkers, once admitted to an audibly stunned audience in the mid-1990s: "If I had to be honest with myself, I have lost the ability to think of what a world beyond capitalism would look like." She was only voicing what has become a broad if implicit loss of political imagination in many of us. For better or worse, revolutions are the constant contrapuntal moments of history. We celebrate them when they bring a better world for us and excoriate them when they oppose what we take to be our interests or beliefs. One of the stunning things about the present is the extent to which the prospect and affect of revolutionary social change have been blanked from the imaginary of political possibility. It may not be too optimistic to begin again to encourage a revolutionary imaginary.

Neil Smith
New York City
September 27, 2007

Notes

Introduction

1. For an early example, see David Harvey, *Social Justice and the City* (London, 1973). See also Henri Lefebvre, *The Survival of Capitalism* (London, 1976); David Harvey, *The Limits to Capital* (Oxford, 1982); Michel Aglietta, *A Theory of Capitalist Regulation* (London, 1979); Nigel Harris, *Of Bread and Guns* (Harmondsworth, 1983); J. Carney, R. Hudson and J. Lewis (eds), *Regions in Crisis: New Perspectives in European Regional Theory* (London, 1980); Michael Dunford and Diane Perrons, *The Arena of Capital* (London, 1983).

2. H. J. Mackinder, "The Geographical Pivot of History," *Geographical Journal* 23 (1904), pp. 421–37.

3. Ernest Mandel, *Trotsky: A Study in the Dynamic of His Thought* (London, 1979), p. 34.

4. V. I. Lenin, *The Development of Capitalism in Russia* (Moscow, 1977 edn). See also *Imperialism, The Highest Stage of Capitalism* (Peking, 1975 edn).

5. See for example Michael Lowy's recapitulation of the political idea and sympathetic assessment in a modern light in *The Politics of Combined and Uneven Development* (London, 1981).

6. Karl Marx, *Capital*, 3 volumes (New York, 1967), 3, p. 175; *Theories of Surplus Value*, 3 volumes (London, 1969), 1, p. 410.

Chapter One: The Ideology of Nature

1. Earl Finbar Murphy, *Governing Nature* (Chicago, 1967), p. 11; M. Horkheimer and T. Adorno, *Dialectic of Enlightenment* (New York, 1972).

2. Yirmiahu Yovel, *Kant and the Philosophy of History* (Princeton, 1980), p. 181, passim; R. G. Collingwood, *The Idea of Nature* (London, 1945), pp. 116–20.

3. In this connection see the definitive work of Clarence Glacken which treats the history of concepts of nature, from ancient times to the eighteenth century, from a particularly geographical perspective: *Traces on the Rhodian Shore* (Berkeley, 1967).

4. Benjamin Farrington, *Francis Bacon: Philosopher of Industrial Science* (New York, 1961); Paulo Rossi, *Francis Bacon: From Magic to Science* (London, 1968); William Leiss, *The Domination of Nature* (Boston, 1974), ch. 3.

5. "Of the Proficience and Advancement of Learning, Divine and Humane," quoted in Leiss, *Domination of Nature*, pp. 56–57.

6. For example: "geometry is founded in mechanical practice, and is nothing but that part of universal mechanics which accurately proposes and demonstrates the art of measuring"—quoted in Max Jammer, *Concepts of Space* (Cambridge, Mass., 1969), p. 96.

7. Rossi, *Francis Bacon*, p. 26.

8. For an interesting discussion of Newton, see Jammer, *Concepts of Space*, ch. 4. This entire issue of the relation between space and matter is taken up again and treated in greater detail in chapter 3.

9. Edward Wilson, *Sociobiology* (Cambridge, Mass., 1975); *On Human Nature* (Cambridge, Mass., 1978); Arthur Caplan, *The Sociobiology Debate* (New York, 1978).

10. Carl Friedrich von Weizsacker, *The Unity of Nature* (New York, 1980), pp. 6–7.

11. Henry Nash Smith, *Virgin Land* (Cambridge, Mass., 1950), p. 260; Leo Marx, *The Machine in the Garden* (New York, 1964), p. 110.

12. Marx, *Machine in the Garden*, p. 72; Roderick Nash, *Wilderness and the American Mind* (New Haven, 1967), p. 8. On nature and nationalism, see Perry Miller's study of *Nature's Nation* (Cambridge, Mass., 1967), especially ch. 1 on "The Shaping of the American Character."

13. Alexis de Tocqueville, *Democracy in America*, 2 volumes (New York, 1945 edn), 2, p. 78.

14. Nash, *Wilderness*, pp. 28–43.

15. Sam Bass Warner, *The Urban Wilderness* (New York, 1972). "Urban frontier" and "urban pioneer" are comparatively recent terms referring to the conquest of inner-city working-class neighborhoods by white middle-class professionals: the evils and dark haunts of urban "blight" are thereby conquered and civilization is served in the name of social progress for all. The metaphor is exact.

16. Barbara Novak, *Nature and Culture: American Landscape and Painting 1825–1875* (New York, 1980), pp. 101–34.

17. Nash, *Wilderness*, p. 44.

18. Peter Schmitt, *Back to Nature* (New York, 1969).

19. Miller, *Nature's Nation*, p. 197; George Mowry, *The Urban Nation 1920–1960* (New York, 1965), p. 2. See also Morton and Lucia White, *The Intellectual Versus the City* (Oxford, 1977), for a discussion of "anti-urban ideology."

20. Novak, *Nature and Culture*, p. 17; the phrase "christianized naturalism" is Perry Miller's. See also Albert K. Weinberg, *Manifest Destiny* (Gloucester, Mass., 1958).

21. Ralph Waldo Emerson, "Nature," in *Selected Writings* (New York, 1965), pp. 186–223.

22. Marx, *Machine in the Garden*, p. 96.

23. Novak, *Nature and Culture*, p. 157. So entrenched was this contradiction that it still haunts Frederick Jackson Turner's announcement of the end of frontier. See *The Frontier in American History* (New York, 1920 edn); and Smith, *Virgin Land*, ch. 22.

24. Marx, *Machine in the Garden*, p. 195.

25. Ibid., p. 93. For the best treatment of landscapes devoid of the labor that sculpted them, see Raymond Williams, *The Country and the City* (St Alban's, 1975).

26. Joshua C. Taylor, *America as Art* (Washington, D.C., 1976), p. 178; Emerson, *Selected Writings*, p. 187. Interpreting this difficult passage by Emerson, Morton, and Lucia White say: "As Emerson pointed out, the word 'nature' has two main senses. According to one it refers to the totality of things, processes and events in the universe; according to another it refers to the universe as it would be if no human being ever touched it or interfered with its behavior" (*Intellectual Versus the City*, p. 233). This is obviously a precise rendition of the dualism of universal and external nature, but I think its accuracy is due in part to its interpretation not to the original. Emerson is not at all so unambiguous about the existence of two "natures."

27. Miller, *Nature's Nation*, p. 199; Novak, *Nature and Culture*, p. 38.

28. See Annette Kolodny, *The Lay of the Land* (Chapel Hill, 1975); Carolyn Merchant, *The Death of Nature* (San Francisco, 1980); Sherry B. Ortner, "Is Female to Male as Nature Is to Culture?" in Michelle Zimbalist Rosaldo and Louise Lamphere (eds), *Woman, Culture, and Society* (Stanford, 1974), pp. 67–87; Frederick Engels, *The Origin of the Family, Private Property, and the State* (New York, 1972 edn).

29. Bernard Rosenthal, *The City of Nature* (Newark, De., 1980).

30. Henri Lefebvre, *The Sociology of Marx* (New York, 1968), p. 64. See also Jorge Larrain, *The Concept of Ideology* (Athens, Ga., 1979); and Bhikhu Parekh, *Marx's Theory of Ideology* (Baltimore, 1982).

31. Milton Fisk, "The Human-Nature Argument," *Social Praxis* 5 (1980), pp. 343–61.

32. Marx, *Machine in the Garden*, p. 32; and Williams, *Country and the City*.

33. On nature in economic theory see Dieter Groh and Rolf-Peter Sieferle, "Experience of Nature in Bourgeois Society and Economic Theory: Outlines of an Interdisciplinary Research Project," *Social Research* 47 (1980), pp. 557–81. On the development of the other social sciences in the nineteenth century see Martin Shaw, *Marxism and Social Science* (London, 1975), pp. 75–79.

34. Marx, *Capital*, 1, p. 81.

35. Alfred Schmidt, *The Concept of Nature in Marx* (London, 1971), p. 15. All page numbers in the text of this chapter refer to this work.

36. Certainly, Marx also described the physiological division of labor as natural, particularly in his earlier work, but this did not imply as it does for Schmidt an opposition to and abstraction from the social. Hence, for example: "the nucleus, the first form" of property lies in "the natural division of labour

in the family" wherein "wife and children are the slaves of the husband. This latent slavery in the family, though still very crude, is the first property"—Karl Marx and Frederick Engels, *German Ideology* (New York, 1970 edn), p. 52.

37. "Kant's problem of the 'constituents' of the objects of knowledge was thus (objectively) restored for Marx, not in the sense of a simple return to transcendental philosophy, but on the basis definitively attained by Hegel in his critique of Kant" (p. 12).

38. Hegel concludes his *Philosophy of Nature* (London, 1970 edn) thus: "in Nature the Concept [*Begriff*] speaks to the Concept and the . . . veritable form of the Concept which was concealed beneath Nature's scattered and infinitely many shapes will reveal itself to reason" (p. 445). For an alternative to the greatly simplified but orthodox reading of Kant offered here, see Richard Kroner, *Kant's Weltanschauung* (Chicago, 1956).

39. There are in Schmidt very many "on the one hand/on the other hand" analyses. This is symptomatic. When he puts both hands together he gets the usual result: a prayer—for unity.

40. Consistent with his initial project, Schmidt owes more to Kant than Hegel, hence the ultimate victory of a dual conception of nature in this thought. A deficiency he notes in theory—that there exists "between Marx and Kant a relationship which has not yet been sufficiently noticed" (p. 120)—he attempts to rectify in practice by fitting Marx into Kant's shoes: in Hegel's dialectic, Schmidt says, "it is idealist identity which triumphs at the end of the system. In the Marxist dialectic the reverse is the case: it is non-identity which is victorious in the last instance" (p. 28).

41. Sohn-Rethel, *Intellectual and Manual Labour* (London, 1978), p. 15.

42. Karl Marx, *Grundrisse* (London, 1973), p. 646.

43. "The investigation of the creation of use-values through the labour-process does not at first require a characterization of the relations of production within which that process takes place" (p. 93). Neither at first nor at last does Schmidt seriously consider class. He avoids class just as he avoids exchange-value.

44. While Schmidt's philosophy leads him to speculate that socialism too will dominate nature, Althusser's philosophy leads *him* to speculate that ideology will remain under socialism and communism. *For Marx* (London, 1977), p. 223; *Essays in Self Criticism* (London, 1976), p. 121, passim. This is a very interesting parallel between Althusser and the Frankfurt School, whom we generally view as representing quintessentially opposed traditions, but who share

a surprising array of conclusions and viewpoints. The common link is a shared philosophical idealism.

45. Bertrand Russell, *A History of Western Philosophy* (New York, 1945), p. 790.

46. Jürgen Habermas, *Toward a Rational Society* (Boston, 1970), p. 87. On "The Revolt of Nature," see Max Horkheimer, *Eclipse of Reason* (New York, 1974 edn), pp. 92–127. Cf. the critique of the "domination of nature" thesis by William Leiss, a student of Marcuse's: "If the idea of the *domination* of nature has any meaning at all, it is that by such means—that is, through the possession of superior technological capabilities—some men attempt to dominate and control other men. The notion of a common domination of the human race over external nature is nonsensical. . . . 'Man' as such is an abstraction which . . . only conceals the fact that in the actual violent struggles among *men* technological instruments have a part to play"—*Domination of Nature*, pp. 122, 123. See also Jürgen Habermas, "Toward a Reconstruction of Historical Materialism," *Theory and Society* 2 (1975), pp. 287–300.

47. Martin Jay, *The Dialectical Imagination* (London, 1973), p. 256.

48. Raymond Williams, "Problems of Materialism," *New Left Review* 109 (1978), pp. 3–17.

49. Boris Komarov, *The Destruction of Nature in the Soviet Union* (London, 1980).

50. Sebastiano Timpanaro, *On Materialism* (London, 1975), p. 52. On Althusser, see Neil Smith, "Symptomatic Silence in Althusser: The Concept of Nature and the Unity of Science," *Science and Society* 44(1) (1980), pp. 58–81.

Chapter Two: The Production of Nature

1. Karl Marx, *Value, Price, and Profit* (London, 1899), p. 54.

2. The question whether Marx's work should be seen as a continuity or as a sequence of essentially separate periods is not a new one. It arose initially with the publication in the early twentieth century of some of Marx's earlier works, none of which had hitherto been published. Most recently, the sternest advocate of the view that Marx's work be divided into discrete periods has been Louis Althusser. See Althusser, *For Marx*. A number of writers have opposed this division between a young and mature Marx. See particularly Bertell Oilman, *Alienation: Marx's Concept of Man in Capitalist Society* (Cambridge, 1971). See also William LeoGrande, "An Investigation into the 'Young Marx' Controversy," *Science and Society* 41 (1977), pp. 129–51.

3. Marx, *Grundrisse*, p. 10. For an interesting elaboration of the logico-historical method in ch. 1 of *Capital*, see Harry Cleaver, *Reading Capital Politically* (Austin, 1979).

4. *Grundrisse*, p. 85. Cf. also Marx's statement that we "must first deal with human nature in general, and then with human nature as modified in each human epoch," *Capital*, 1, p. 609n.

5. Marx and Engels, *German Ideology*, p. 63.

6. *Capital*, 1, pp. 42–43, 71. (In this translation of *Capital*, "nature" is sometimes capitalized, but, in keeping with other translations, and since the original in German is always capitalized as a noun rather than for any added significance, I have retained the lowercase throughout when quoting. Also, Marx uses "man" and "men" when he means humanity or human beings. For sake of simplicity, rather than avoidance of the problem of sexist language, I retain the original when quoting.)

7. *Capital*, 1, p. 177.

8. Karl Marx, *Early Writings* (Harmondsworth, 1975), p. 355.

9. Ibid., pp. 389–90.

10. *German Ideology*, p. 47.

11. Ibid., p. 51.

12. Ibid., p. 42.

13. Frederick Engels, *Origin*, pp. 251–52; Donna Haraway, "Animal Sociology and a Natural Economy of the Body Politic, Part II: The Past is the Contested Zone: Human Nature and Theories of Production and Reproduction in Private Behavior Studies," *Signs* 4(1) (1978), p. 38. See also Gordon Childe, *Man Makes Himself* (New York, 1939); and Charles Woolfson, *The Labour Theory of Culture* (London, 1982).

14. Rosa Luxemburg, *The Accumulation of Capital* (New York, 1968), p. 77; Ernest Mandel, *Marxist Economic Theory* (London, 1962), pp. 27–28. For a summary of the debate over the origin and function of surplus in the context of urban origins, see David Harvey, *Social Justice*, pp. 216–23.

15. Engels, *Origin*, p. 220; Mandel, *Marxist Economic Theory*, pp. 40, 44.

16. *Capital*, 3, p. 883.

17. *Grundrisse*, p. 146.

18. *Capital*, 1, p. 352.

19. *Origin*, p. 232. See also Lawrence Krader, *Formation of the State* (Englewood Cliffs, N.J., 1968); Elman R. Service, *Origins of the State and Civilization* (New York, 1975).

20. *Origin*, pp. 120–21. See also *German Ideology*, p. 52.

21. *German Ideology*, p. 122.

22. Ibid., p. 52. Marx is often quoted as saying that consciousness is the "direct efflux" of human practice, in order to paint him as a determinist, reductionist, or some other "ist." He is almost never quoted from five pages farther on where he explicitly refines this general and provisional statement. Those who misconstrue Marx in this way do not understand the logico-historical character of the argument.

23. *Grundrisse*, pp. 247–48.

24. Karl Marx and Frederick Engels, *The Communist Manifesto* (New York, 1955), p. 30.

25. Cicero, *De Natura Deorum*, II, 151–52. See *The Nature of the Gods*, translated by Horace C.P. McGregor (Harmondsworth, 1972), pp. 184–85.

26. Count Buffon, quoted in Glacken, *Rhodian Shore*, pp. 655, 663, 664. For Glacken's discussion of Cicero, see pp. 144–46.

27. *Grundrisse*, p. 252.

28. Ibid., p. 881.

29. *Capital*, 1, p. 169.

30. Ibid., 3, p. 880.

31. Ibid., 1, pp. 180, 181n.

32. *Grundrisse*, p. 479.

33. On the complexities and debates surrounding the analysis of the state see Colin Barker, "The State as Capital," *International Socialism* 2(1) (1978), pp. 16–42; J. Holloway and S. Picciotto, *State and Capital* (London, 1978); James O'Connor, *The Fiscal Crisis of the State* (New York, 1973); Suzanne de Brunhoff, *The State, Capital and Economic Policy* (London, 1978). On the Miliband-Poulantzas debate which crystallized much of the discussion over the state, see Ralph Miliband, *The State in Capitalist Society* (London, 1969); Nicos Poulantzas, "The Problem of the Capitalist State," *New Left Review* 58 (1969), pp. 67–78; Ralph Miliband, "The Capitalist State: A Reply to Nicos Poulantzas," *New Left Review* 59 (1969), pp. 53–60; Ernesto Laclau, "The Specificity of the Political: The Poulantzas-Miliband Debate," *Economy and Society* 4 (1975), pp. 87–100; Ralph Miliband, "Poulantzas and the Capitalist State," *New Left Review* 82 (1973), pp. 83–93; Nicos Poulantzas, "The Capitalist State: A Reply to Miliband and Laclau," *New Left Review* 95 (1976), pp. 63–83.

34. *Grundrisse*, p. 706; *Capital*, 1, p. 384.

35. *Capital*, 1, pp. 350, 360–61, 645.

36. Engels, *Origin*, p. 223.

37. Joan Smith, "Women and the Family," *International Socialism* 100 (1977), pp. 21–22. For a survey and critique of different viewpoints on patriarchy and class, see Joan Smith, "Women, Work, Family, and the Economic Recession," paper presented at the symposium on "Feminism and the Critique of Capitalism," The Johns Hopkins University (24–25 April 1981). Marx's and Engels' conclusion that proletarianization could free women from oppression seems with the benefit of hindsight to have been a little optimistic.

38. On the necessity of the family for capitalism, see Barbara Winslow, "Women's Alienation and Revolutionary Polities," *International Socialism* 2(4) (1979), pp. 1–14. For a different view, see Irene Bruegel, "What Keeps the Family Going?" *International Socialism* 2(1) (1978), pp. 2–15.

39. *Capital*, 1, p. 176.

40. Karl Marx, *A Contribution to the Critique of Political Economy* (London, 1971), pp. 20–21.

41. *Capital*, 1, p. 181.

42. *German Ideology*, p. 63.

43. *Grundrisse*, p. 646.

44. G. W. F. Hegel, *Philosophy of Right*, translated by T. M. Knox (London, 1967), p. 20.

45. Sohn-Rethel, *Intellectual and Manual Labour*, pp. 28, 56–57.

46. *Grundrisse*, pp. 409–10.

47. *Capital*, 1, p. 183.

48. Marx writes: "Land yields rent after capital is invested not because capital is invested, but because the invested capital makes this land more productive than it formerly was. . . . This rent too, which may be resolved into interest, becomes pure differential rent as soon as the invested capital is amortized"—*Capital*, 3, p. 746. David Harvey makes this point in *Limits*, p. 337.

49. Friedrich Engels, *Anti-Duhring* (London, 1975), p. 425; *Capital*, 1, p. 10; Karl Marx, *The Eighteenth Brumaire of Louis Bonaparte* (New York, 1963), p. 15.

50. Marx to Kugelmann, 11 July 1868, Marx-Engels, *Selected Correspondence* (London, 1934), p. 246.

51. *Communist Manifesto*, p. 14.

52. Friedrich Engels, *Dialectics of Nature* (Moscow, 1954), p. 180.

53. This obviously gives a crucial role to science, but a critical science, be-

cause the ideological function of science has generally been to make specific social relations appear natural, meaning inevitable. As Marx wrote, the formulae of political economy "appear to the bourgeois intellect to be as much a self-evident necessity imposed by nature as productive labour itself" (*Capital*, 1, p. 81). The distinction between natural and social science permits a fetishism of "nature" as the object of natural scientific investigation, and it permits social science to fashion itself after natural science, taking society as its natural object of investigation. There is but a single science, according to Marx and Engels, not separate sciences of nature and society. But the unity of science is a practical process, a unity to be created. Science must be revised "to the point where it can be presented dialectically," as Marx wrote to Engels (*Selected Correspondence*, p. 123). For the so-called natural sciences particularly, this involves retrieving a politics which rightfully belongs to science but which has been expropriated and excluded. If we are correct about the production of nature, the politics of science involves the distinction of natural laws from social creations, not as natural versus social science, but as science versus ideology. In this connection, see Valentine Gerratana's critique of post-Darwinian evolutionism: scientists concerned with evolution, "who more than any other contributed to demonstrating the historicity of nature, ended by denying and excluding the historical process in the very part of natural history that is human history." This signaled a "methodological inversion"—a lapse "back into affirmation of historical laws of social development as eternal laws of nature." Gerratana, "Marx and Darwin," *New Left Review* 82 (1973), pp. 60–82.

54. *Grundrisse*, p. 410.

55. Isaiah Bowman, *Geography in Relation to the Social Sciences* (New York, 1934).

56. Jean Gottmann, *Megalopolis* (New York, 1961), p. 79.

57. *Origin*, p. 253.

58. *Dialectics of Nature*, p. 180.

59. *Early Writings*, p. 348.

60. *Capital*, 3, p. 820.

61. Schmidt, *Nature in Marx*, p. 196.

Chapter Three: The Production of Space

1. Albert Einstein, "Foreword," in Jammer, *Concepts of Space*, p. xii.

2. In particular, we shall not attempt to discuss the treatment of space in the psychological and anthropological literature although these overlap with

treatments of geographical space. See, for example, Edward Hall, *The Hidden Dimension* (New York, 1966); Claude Levi-Strauss, *Structural Anthropology* (New York, 1963); J. Piaget, *The Principles of Genetic Epistemology* (London, 1972); Carl Jung, *Man and His Symbols* (London, 1964).

3. Fred Schaefer, "Exceptionalism in Geography: A Methodological Examination," *Annals of the Association of American Geographers* 43 (1953), pp. 226–40; William Bunge, *Theoretical Geography* (Lund, 1966, 2nd edn); Peter Haggett, *Locational Analysis* (London, 1965); Ian Burton, "The Quantitative Revolution and Theoretical Geography," *Canadian Geographer* 7 (1963), pp. 151–62. David Harvey was the first to discuss explicitly, in the geographic context, the concepts of absolute and relative space: *Explanation in Geography* (London, 1969). In *Social Justice* Harvey adds a third concept of space—relational space—but the distinction between relative and relational space is not sufficiently clarified.

4. Alfred North Whitehead, *The Concept of Nature* (Cambridge, 1920), p. 33.

5. Principia, quoted in Jammer, *Concepts of Space*, p. 99.

6. For a defense of relative space see Ian Hinckfuss, *The Existence of Space and Time* (Oxford, 1975). For a nee-Newtonian defense of absolutism, rare for the extent to which it preserves Newton's original concept, see Graham Nerlich, *The Shape of Space* (Cambridge, 1976). For a classic treatment which helped to reinstate the absolute concept of space, without at the same time repudiating the relative concept, see Adolf Grunbaum, *Philosophical Problems of Space and Time* (New York, 1963).

7. Robert Sack, *Conceptions of Space in Social Thought* (Minneapolis, 1980), p. 22.

8. Ernst Cassirer, *An Essay on Man* (London, 1944), pp. 45–46.

9. Jammer, *Concepts of Space*, pp. 3–4. See also John G. Gunnell, *Political Philosophy and Time* (Middleton, Conn., 1968), p. 117.

10. Jammer, *Concepts of Space*, p. 22.

11. Hans Reichenbach, *The Philosophy of Space and Time* (New York, 1958), p. 217.

12. Jammer, *Concepts of Space*, p. 198. For almost identical wording of Einstein's position, see Grunbaum, *Space and Time*, p. 421. What does it mean that "epistemological" and "ontological" priority are different, even opposite? Does it not mean simply that what we know to be real may be quite opposite from what is actually real (however the latter might be known)?

13. Quoted in Jammer, *Concepts of Space*, p. 96. Geometry is often confused with spatial structure, and with good reason. But there is a distinction between them which must be made clear. According to the modern conception, geometry is not an independent conceptual system. Rather it represents a concerted abstraction from real material objects and events; hence the language of geometry is one of lines and points, solids and surfaces. As a language for describing spatial structure, geometry retains some reference to materiality, however abstract. With increasing abstraction, of course, the exclusivity of Euclidean geometry was exchanged for a multiplicity of more abstract geometries operating in n-dimensions. Nonetheless, spatial structure always means the order and arrangement of material objects and events, while geometry is the abstract language or set of languages used to describe such structures. See Jammer, *Concepts of Space*, pp. 162–76.

14. Ibid., p. 162.

15. Sohn-Rethel, *Intellectual and Manual Labour*, pp. 48–49. George Thomson offers an earlier version of this argument, tracing the concept of space more specifically to the original money economies of early Greece. See *The First Philosophers* (London, 1972 edn). There is not absolute historical agreement on this point, but what is important is that those identifying a different period also point to the interchange between societies as the catalyst for this kind of abstraction. See, for example, the work on Babylon by Otto Neugebauer, "Vorgriechische Mathematik," in *Vorlesungen iiber die Geschichte der antiken Mathematischen Wissenschaften* (Berlin, 1934).

16. Incidentally, this analysis also offers clues concerning the historical priority of space as a concept over time. Whereas the transition from production for use to production for exchange need not at all involve a change in the temporal regime of production and circulation, it did involve a clear change in the spatial regime. Objects that were once produced and consumed within a given locality by a community are henceforth exchanged beyond its boundaries. The temporality of consumption may well remain undisturbed but its spatiality is inevitably and obviously altered. The social separation of production and consumption becomes a spatial separation; the space of production is separated from the space of consumption. The same temporal separation will take place only at a later stage of commodity exchange when the relations of exchange begin to reach back into the sphere of production and to impinge upon the temporal organization of the work process.

17. Emile Durkheim, *The Division of Labour in Society* (Glencoe, Ill., 1947

edn). See also Anne Buttimer, "Social Space in Interdisciplinary Perspective," *Geographical Review* 59 (1969), pp. 417–26.

18. Walter Christaller, *Central Places in Southern Germany* (Englewood Cliffs, N.J., 1966 edn); Bunge, *Theoretical Geography*; Haggett, *Locational Analysis*. The work of August Losch, *The Economics of Location* (New Haven, 1954), is a remarkable exception to this general trend.

19. Foremost among those who in recent years have developed a geographical version of social space is the French geographer Maximilian Sorre whose work has been introduced into English by Anne Buttimer, "Social Space." See also her entry on social geography in the *International Encyclopedia of the Social Sciences*, 6 (New York, 1968), pp. 139–42. On the humanist tradition, see inter alia David Ley and Marvin Samuels, *Humanistic Geography* (Chicago, 1978). For a brief critical assessment see Neil Smith, "Geography, Science, and Post-Positivist Modes of Explanation," *Progress in Human Geography* 3 (1979), pp. 356–83.

20. Harvey, *Social Justice*, p. 32; "The Geography of Capitalist Accumulation: A Reconstruction of the Marxian Theory," *Antipode* 7(2) (1975), pp. 9–21 (reprinted in R. Peet (ed), *Radical Geography* [Chicago, 1977], pp. 263–92); "The Urban Process Under Capitalism: A Framework for Analysis," *International Journal of Urban and Regional Research* 2 (1978), 101–31.

21. In the humanist tradition see Sack's essentially separate treatments of "objective" and "subjective" space, and the more general assessment of Richard Bernstein, *The Restructuring of Social and Political Theory* (Oxford, 1976), part III and p. 232. On the resilience of the dualism in marxist approaches, see Richard Feet's attempt to fashion a "spatial dialectics" in "Spatial Dialectics and Marxist Geography," *Progress in Human Geography* 5 (1981), 105–10; for a critique see Neil Smith, "Degeneracy in Theory and Practice: Spatial Interactionism and Radical Eclecticism," *Progress in Human Geography* 5 (1981), 111–18. According to Sohn-Rethel, such "unyielding dualisms" are "a more faithful reflection of the realities of capitalism than can be found in the efforts of the illustrious post-Kantians striving to rid themselves of it. . . . How can the truth of the bourgeois world present itself other than as dualism?" *Intellectual and Manual Labour*, p. 15. The function of theory, then, is to incorporate and understand this reality at the same time as it strives to change it.

22. Eighth Thesis on Feuerbach, *German Ideology*, p. 121.

23. Marx insisted on the unity of science: "We know only a single science, the science of history. One can look at history from two sides and divide it into the

history of nature and the history of men. The two sides are, however, inseparable; the history of nature and the history of men are dependent on each other so long as men exist"—Marx and Engels, *Feuerbach* (London, 1973), p. 15. This formulation concerning the relativity of geographical space is consistent with the relativity of space implied in physics. The difference, leaving aside the social character of geographical space, is simply one of scale. This leaves open the possibility of a unified science, based on space, certainly, but based more fundamentally on nature. This will not be pursued here. For a treatment of this issue in relation to Louis Althusser's philosophy see my "Symptomatic Silence in Althusser."

24. Sack, *Conceptions*, p. 170. He is careful to stress that "primitive" is used not in its unfortunate pejorative sense, but rather to imply historical primacy.

25. Engels, *Origin*, see also the introduction by Eleanor Leacock, pp. 33–34. On the limits to this generalization, see Nancy Tanner, *On Becoming Human* (New York, 1981).

26. Engels, *Origin*, pp. 176, 179, 229.

27. Sack, *Conceptions*, p. 184.

28. *Capital*, 1, p. 37.

29. On space as a commodity, see Harvey, *Limits*, pp. 337–39, 375–80.

30. *Surplus Value*, 1, p. 412.

31. *Limits*, pp. 375–76.

32. *Surplus Value*, 3, p. 253.

33. For an insightful discussion of the differential mobility of capital in its different forms, see Harvey's *Limits*, pp. 376–95.

34. *Capital*, 1, p. 180.

35. For an excellent illustration of the pitfalls that accompany the rigid equation of space with means of production—particularly the reification of "spaces" and space as an independent object or objects—see G. A. Cohen, *Karl Marx's Theory of History* (Princeton, 1978), pp. 50–55. The problem here is actually more basic, illustrating the problems of a philosophical approach to Marx in general. For Cohen's study is essentially an exercise in analytic philosophy in which Marx's "theory" of history is almost incidental; the theory of history becomes simply a well-equipped conceptual gymnasium in which analytic philosophy is made to go through its paces.

36. Peter Taylor makes the same point in "A Materialist Framework for Political Geography," *Transactions of the Institute of British Geographers* 7 (1982), 15–34.

37. J. Scott-Keltie, *The Partitioning of Africa* (London, 1893); S. E. Crowe, *The Berlin West African Conference* 1884–1885 (London, 1942).

38. Lenin, *Imperialism*, p. 90.

39. The importance of the spatial immobilization of capital has been consistently stressed by Harvey, beginning with *Social Justice*.

40. *Grundrisse*, p. 769; *Capital*, 1, p. 621.

41. Concerning urban space, Melvin Webber has argued for a flattening process in "The Urban Place and the Non-Place Urban Realm," in *Explorations into Urban Structure* (Philadelphia, 1944). Against this, Harvey emphasized the differentiation of urban space in "Class Structure in a Capitalist Society and the Theory of Residential Differentiation," in R. Peel, M. Chisholm, and P. Haggett (eds), *Processes in Physical and Human Geography* (Edinburgh, 1975). Concerning regional development, Kenneth Fox has argued the convergence thesis in "Uneven Regional Development in the United States," *Review of Radical Political Economics* 10(3) (1978), 68–86. Stuart Holland argues the divergence thesis in *Capital Versus the Regions* (London, 1976). And at the international scale, Bill Warren argues the convergence thesis in *Imperialism: Pioneer of Capitalism* (London, 1980), while Samir Amin argues for divergence in *Unequal Development* (New York, 1976). These are only examples; many more references could be given in connection with each position.

42. *Social Justice*, p. 309; Manuel Castells, *The Urban Question* (London, 1977), pp. 437–71.

43. Lefebvre, *Survival of Capitalism*; *La Revolution urbaine* (Paris, 1970).

44. Ed Soja, "The Socio-Spatial Dialectic," *Annals of the Association of American Geographers* 70 (1980), 207–25.

45. *Urban Question*, p. 92.

46. It is worth noting in passing that Lefebvre retains the traditional assumptions concerning the priority of space over nature. Thus he sees "environmental problems" as at root spatial problems rather than the other way around (*Survival of Capitalism*, p. 27). More curiously, Lefebvre's perspective tends to lead toward the opposite conclusion to Marx's in terms of the relationship between time and space; the reproductionist version of the production of space leads not to the "annihilation of space by time" but to something akin to the annihilation of time by space.

47. Alexander Pope seems to have been the original author. In one of his poems, written a century and a half before Marx used the phrase, he wrote: "Ye Gods! annihilate but space and time, / And make two lovers happy." The phrase

was picked up in the nineteenth century to describe the dramatic effect of the introduction of railways into the American landscape. In fact, "No stock phrase in the entire lexicon of progress appears more often than 'the annihilation of space and time,'" according to Leo Marx. "The extravagance of this sentiment," he continues, "apparently is felt to match the sublimity of technological progress"—*Machine in the Garden*, p. 194. In the context of upper-middle-class suburbanization in 1848, Andrew Jackson Downing writes, in the magazine *Horticulture*, about "the old notions of time and space being half annihilated"—"Hints to Rural Improvers," *Horticulture* (July 1848), reprinted in his *Rural Essays* (New York, 1857), p. 111. This then presumably where the other Marx first encountered the idea, but of course his "annihilation of space *by* time" instead of the "annihilation of space *and* time" brought a whole new meaning.

48. *Grundrisse*, pp. 524, 539–40.

49. Karl Marx, "The Future Results of the British Rule in India," in *Surveys from Exile* (New York, 1974), pp. 319–25.

50. Harvey, *Limits*, ch. 13.

51. *Capital*, 1, p. 581n.

52. Luxemburg, *Accumulation of Capital*, p. 365.

53. Lenin, *Capitalism in Russia*. See also "New Data on the Laws Governing the Development of Capitalism in U.S. Agriculture," *Collected Works*, 22, pp. 13–102.

54. *Imperialism*, p. 113.

55. Ibid., p. 48, quoting from Jeidels.

56. "Are space and time real or ideal, and are our relative conceptions of space and time *approximations* to objectively real forms of being; or are they only products of the developing, organising harmonising human mind?" Lenin asked. His answer was unequivocal: "materialism must . . . inevitably recognise the objective reality of time and space, in contrast above all to Kantianism, which in this question sides with idealism and regards time and space not as objective realities but as forms of human understanding. . . . There is nothing in the world but matter in motion, and matter in motion cannot move otherwise than in space and time"—*Materialism and Empirio-Criticism* (New York, 1972 edn), pp. 176–89. In his treatment of space and other issues in this work, Lenin delved into philosophy and was never able to extricate himself. He thus encouraged the growth of a philosophy of marxism, separate from marxism as science, despite Marx's clear admonition that philosophy separate from science

is an untenable abstraction. See Z. A. Jordan, *The Evolution of Dialectical Materialism* (London, 1967).

57. Nikolai Bukharin, *Imperialism and the World Economy* (London, 1972 edn).

58. As this relatively recent work develops, exceptions to the general tendency arise. See the analysis of spatial differentiation in Richard Walker, "A Theory of Suburbanization: Capitalism and the Construction of Urban Space in the United States," in Michael Dear and Alien Scott (eds), *Urbanization and Urban Planning in Capitalist Society* (London, 1981), pp. 383–429. See also the concise and innovative but much neglected essay by Harvey, "Geography."

Chapter Four: Toward a Theory of Uneven Development I

1. Significant exceptions to this general rule include Enzo Mingione, *Social Conflict and the City* (Oxford, 1981); Harvey, *Limits*; Michael Dunford and Diane Perrons, *The Arena of Capital* (London, 1983).

2. *Grundrisse*, p. 109.

3. There is of course a political tradition associated with "uneven development." This tradition is most directly due to Trotsky who, as part of his theory of permanent revolution, talked about the "law of uneven and combined development." As such, uneven development figured prominently in the polemic between Trotsky and Stalin over the possibility of "socialism in one country." See Leon Trotsky, *Permanent Revolution and Results and Prospects* (New York, 1969 edn), *The History of the Russian Revolution* (London, 1977 edn), and *The Third International After Lenin* (New York, 1970 edn); Joseph Stalin, *Dialectical and Historical Materialism* (New York, 1940 edn), *Economic Problems of Socialism in the USSR* (Peking, 1971 edn), and *Works* (Moscow, 1954), 8, pp. 256–61 and 326, and 9, pp. 110–11. See also, Tony Cliff, "Permanent Revolution," *International Socialism* 61 (1973), 18–29, and Lowy, *Combined and Uneven Development*. This political treatment of uneven development is not at all separate from the contemporary political economic approach to the issue. In fact, the political arguments generally take for granted an economic rationale for the origins of uneven development. Trotsky, for example, only began to pay serious attention to uneven development in the revolutionary situation of 1905 in Russia, when, as in all revolutionary situations, the economic laws of society are increasingly suspended in favor of a direct political determination of history. In treating uneven development here as an essentially economic problem, I am

not at all denying its political significance but am attempting, rather, to offer a skeletal account of the economic rationale for uneven development which is taken for granted in the political tradition.

4. "The law of uneven development, which some have wished to restrict to the history of capitalism alone, or even merely to the imperialist phase of capitalism, is thus a universal law of human history"—Mandel, *Marxist Economic Theory*, p. 91. In later works, Mandel retained this view of the universality of uneven development, even alongside concrete insights concerning uneven development under capitalism. Indeed in his monumental work, *Late Capitalism* (London, 1975), he did not in the end fulfill his promise of integrating the theory of capitalist development with its recent history, in part because his conception of uneven development was drained of its integrative power by the insistence that unevenness is a universal law of human history. Cf. also Althusser's "law of uneven development . . . does not concern imperialism alone, but absolutely 'everything in this world.' . . . uneven development . . . is not external to contradiction, but constitutes its most intimate essence." It "exists in the essence of contradiction itself"—"On the Materialist Dialectic—On the Unevenness of Origins," in Louis Althusser, *For Marx* (London, 1977), pp. 200–13. This formulation derives from Mao's "On Contradiction," *Selected Readings* (Peking, 1971), pp. 85–133.

5. *Late Capitalism*, p. 23.

6. Rayna Reiter, "Men and Women in the South of France," in R. Reiter (ed), *Toward an Anthropology of Women* (New York, 1975), pp. 273–75.

7. *Surplus Value*, 1, p. 49.

8. For one of the most interesting examples of environmental determinism, see Ellen Semple, *Influences of Geographic Environment* (New York, 1911). See also Carl Sauer, "The Morphology of Landscape," *University of California Publications in Geography* 2 (1925), 19–53; and Richard Hartshorne, *Perspective on the Nature of Geography* (London, 1959); and *The Nature of Geography* (Lancaster, Pa., 1939).

9. Halford J. Mackinder, *Democratic Ideals and Reality* (New York, 1942 end), pp. 1–2. This recalls Mackinder's famous adage, so useful to Hitler, concerning what Mackinder calls the "Heartland" (Eastern Europe) and the "World Island" (The Europe/Asia Landmass): "Who rules East Europe commands the Heartland: Who rules the Heartland commands the World-Island: Who rules the World-Island commands the World." For an interesting glimpse of how this "new geography" of the nineteenth century served the interests of

British imperialism, see Brian Hudson, "The New Geography and the New Imperialism: 1870–1918," *Antipode* 9(2) (1977), 12–19.

10. George G. Chisholm, *Chisholtn's Handbook of Commercial Geography* (London, 1937 edn) (entirely rewritten by L. Dudley Stamp), pp. 1, 7–9. See also Cyrus C. Adams, *A Textbook of Commercial Geography* (New York, 1901). Chapters 2–4 of this text attempt to make very explicit the natural principles at the basis of commercial geography.

11. Bukharin, *Imperialism*, p. 20.

12. Frederick Jackson Turner, "The Significance of the Frontier in American History," in *Frontier*, pp. 14–15.

13. *Capital*, 1, p. 351. See also, Harry Braverman, *Labour and Monopoly Capital* (New York, 1975), pp. 70–84.

14. See Mike Kidron's analysis of the "permanent arms economy" in *Western Capitalism Since the War* (Harmondsworth, 1970), ch. 3; and Chris Harman, "Marx's Theory of Crisis and its Critics," *International Socialism* 2(11) (1981), 48–55.

15. For a similar approach to the division of capital into departments and sectors, see Christian Palloix, *L'lnternationalisation du capital* (Paris, 1975). Parts of this are available in translation as "The Self-Expansion of Capital on a World-Scale," *Review of Radical Political Economy* 9(2) (1977), 1–28, especially 25–27.

16. *Capital*, 1, pp. 379, 381, 386.

17. Ibid., p. 352.

18. *Grundrisse*, p. 479.

19. The passing of the urban-rural dichotomy was finally canonized in the social sciences with a debate in the early 1960s within sociology. See F. Benet, "Sociology Uncertain: The Ideology of the Rural-Urban Continuum," *Comparative Studies in Society and History* 6 (1963), 1–23. P. M. Hauser, "Observations on the Urban-Folk and Urban-Rural Dichotomies as Forms of Western Ethnocentrism," in P. M. Hauser and L. Schnore, *The Study of Urbanization* (London, 1965), pp. 503–18; Ray Pahl, "The Rural-Urban Continuum," in *Readings in Urban Sociology* (Oxford, 1968), pp. 263–97.

20. Manuel Castells, however, has attempted to correlate the urban-regional distinction with that between reproduction and production. This is not as implausible as it might at first seem, but as we shall see below, Castells's formulation is oversimplified and too formalistic—*Urban Question*, pp. 437–71.

21. *Capital*, 1, p. 451.

22. Mandel, *Late Capitalism*, pp. 63, 370; on the industrialization of underdeveloped economies, see Nigel Harris, "The Asian Boom Economies and the 'Impossibility' of National Economic Development," *International Socialism* 2(3) (1979), 1–16; Bill Warren, "Imperialism and Capitalist Industralization," *New Left Review* 81 (1973), 105–15.

23. Samir Amin, "Accumulation and Development: A Theoretical Model," *Review of African Political Economy* 1(1) (1974), 9–26; *Unequal Development*.

24. Harvey, *Limits*, pp. 425–46.

25. *Grundrisse*, p. 533; *Communist Manifesto,* p. 13.

26. *Capital*, 1, p. 397.

27. Which is not to say that no pre-capitalist societies remain. Clearly they do, but as such they are transformed and fossilized as part of their integration into the capitalist world market, and insofar as the immediate relations of production are something other than wage labor then the division of labor is not advanced. See Ernesto Laclau, "Feudalism and Capitalism in Latin America," *New Left Review* 67 (1971), 19–38 (reprinted in his *Politics and Ideology in Marxist Theory* [London, 1977], pp. 15–40).

28. *Social Justice*, p. 114.

29. *Capital*, 1, pp. 506–7.

30. Ibid., p. 383.

31. *Grundrisse*. p. 694.

32. Ibid., p. 706.

33. Ibid., pp. 705–6.

34. See, for example, Pierce Lewis, David Lowenthal, and Yi-Fu Tuan, *Visual Blight in America* (Washington, D.C., 1973); Edward Relph, *Place and Placelessness* (London, 1976). For Marcuse see *One Dimensional Man* (London, 1964), especially ch. 2. See also Habermas, *Rational Society*, ch. 6.

35. *Grundrisse*, pp. 701–2. Yet the rejection of the labor theory of value in favor of some technological theory of value is certainly implied in Marcuse, and made more explicit in Habermas.

36. *Capital*, 1, p. 322.

37. Ibid., pp. 322–27. Marx's general point about cooperation is important, but some of his supporting ideas—for example that a person's "animal spirits . . . heighten the efficiency of each individual labourer," or that the collective laborer "is, to a certain degree, omnipresent"—are rather suspect. They should probably be left back in the nineteenth century.

38. Ibid., pp. 384–86; *Capital*, 3, p. 79.

39. *Capital*, 1, pp. 626–28.

40. Ibid., p. 687; *Grundrisse*, p. 508. The following table gives figures for the present century.

The Percentage of Assets in the U.S. Economy Held by (a) the 100 Largest Corporations and (b) the 200 Largest

	100 Largest	*200 Largest*
1925	34.5	—
1929	38.2	45.8
1933	42.5	49.5
1939	41.9	48.7
1947	37.5	45.0
1954	41.9	50.4
1958	46.0	55.2
1962	45.5	55.1
1965	45.9	55.9
1968	48.4	60.4

Source: Report to the Congress on the Hearings of the Sub-Committee on Anti-Trust Monopoly (91st Congress, 1969–70).

41. *Capital*, 1, pp. 625, 763.

42. See Walter Isard, *Location and Space Economy* (Cambridge, Mass., 1956).

43. *Capital*, 2, p. 219; *Surplus Value*, 3, p. 271.

44. On the importance of the distinction between devalorization and devaluation, see Neil Smith, "The Concepts of Devaluation, Valorization, and Depreciation in Marx: Toward a Clarification," unpublished, Department of Geography and Environmental Engineering, The Johns Hopkins University, 1981.

45. Simon Kuznets, *Capital in the American Economy* (Princeton, 1960); Moses Abramowitz, "On the Nature and Significance of Building Cycles," *Economic Development and Cultural Change* 9 (1961), pp. 225–48; Brinley Thomas, *Migration and Economic Growth* (London, 1973); Parry Lewis, Bu*ilding Cycles and Britain's Growth* (London, 1965); Ernest Mandel, *Long Waves of Capitalist Development* (Cambridge, 1980).

46. Harvey, "Geography"; "Urban Process"; *Limits*, chs 12 and 13.

47. Walter Isard, "A Neglected Cycle: The Transport Building Cycle," *Review of Economics and Statistics* 24 (1942), pp. 149–58; J. W. R. Whitehand, "Building Cycles and the Spatial Form of Urban Growth," *Transactions of the Institute of British Geographers* 56 (1972), pp. 39–55; Whitehand, "Fluctuations in

the Land—Use Composition of Urban Development During the Industrial Era," *Erdkunde* 35 (1981), pp. 129–40; R. Walker, "The Transformation of Urban Structure in the Nineteenth Century and the Beginnings of Suburbanization," in K. Cox (ed), *Urbanization and Conflict in Market Societies* (Chicago, 1978), pp. 165–211; Walker, "Suburbanization."

48. We cannot examine the marxist theory of crisis in detail here. The literature on this topic is now prodigious, but see the series of articles by Chris Harman: "Theories of the Crisis," *International Socialism* 2(9) (1980), pp. 45–80; "Marx's Theory of Crisis"; "The Crisis Last Time," *International Socialism* 2(13) (1981), pp. 1–28; "State Capitalism, Armaments, and the General Form of the Current Crisis," *International Socialism* 2(16) (1982), pp. 37–88. See also the useful review by Anwar Shaikh, "An Introduction to the History of Crisis Theories," in the Union of Radical Political Economics, *U. S. Capitalism in Crisis* (New York, 1978). In addition, see J. Weeks, "The Process of Accumulation and the 'Profit-Squeeze' Hypothesis," *Science and Society* 43 (1979), pp. 259–80. In *Limits*, Harvey gives a useful discussion of crisis in relation to the built environment; he builds from a first-cut through a second-cut to a third-cut at crisis theory, with each cut becoming more complex and the third-cut becoming explicitly geographical.

49. *Capital*, 3, pp. 212, 241, 254.

50. Ibid., p. 255; *Capital*, 2, p. 186.

51. *Capital*, 1, p. 450.

52. Mandel, *Late Capitalism*, ch. 8; Doreen Massey, "The U.K. Electrical Engineering and Electronics Industry," *Review of Radical Political Economics* 10(3) (1978), pp. 39–54; Richard Walker and Michael Storper, "Capital and Industrial Location," *Progress in Human Geography* 5 (1981), pp. 473–509.

53. *Capital*, 2, p. 186.

54. Ernest Mandel, *The Second Slump* (London, 1978); *Capital*, 3, p. 253.

55. *Capital*, 3, p. 257.

56. *Grundrisse*, pp. 740, 694.

57. Harvey, *Limits*, p. 438.

Chapter Five: Toward a Theory of Uneven Development II

1. Harvey, *Limits*, pp. 388–90.

2. Ibid., pp. 390, 393, 396. On the equalization of the rate of profit, see *Capital*, 3, ch. 10.

3. *Limits*, pp. 390, 426–45. See also Harvey's "The Spatial Fix—Hegel, Von Thunen, and Marx," *Antipode*, 13(3) (1981), pp. 1–12.

4. *The Condition of the Working Class in England* (Moscow, 1973 edn), p. 93.

5. *Capital*, I, p. 657.

6. Walker, "Suburbanization"; "Transformation of Urban Structure."

7. As Peter Taylor perceptively observes, there is tacit agreement among a wide range of researchers concerning the validity of this threefold division, but virtually no attempt to understand the origins and functions of these scales. Taylor proposes the need for a "political economy of scale," and he identifies these spatial scales with the scale of *reality* (global space), the scale of *ideology* (the state), and the scale of *experience* (urban). In defining spatial scale in this way Taylor relies on the work of Wallerstein, whose analysis of the world system provides a superior foundation for understanding the division of world space, compared with the traditional bourgeois assumption of the primacy of national space and the nation-state. Taylor asks long overdue questions concerning scale, but I do not think that one has to resort to Wallerstein's perspective of "exchange space" (rather than production) in order to understand the global scale, nor does one have to rely on the rather abstract distinction between reality, ideology, and experience in order to find the roots of spatial scale in social process. In the spirit of Taylor's work, there is a more directly "materialist framework" for understanding the production of these distinct spatial scales under capitalism. See Taylor, "Materialist Framework"; "Geographical Scales Within the World Economy Approach," *Review* 5 (1981), pp. 3–11. For the critique of Wallerstein, see inter alia Robert Brenner, "The Origins of Capitalist Development: A Critique of Neo-Smithian Marxism," *New Left Review* 104 (1977), pp. 25–92.

8. There is a large and diverse literature on this but see Edward J. Taaffe, Howard L. Gauthier, and Thomas A. Maraffa, "Extended Commuting and the Intermetropolitan Periphery," *Annals of the Association of American Geographers* 70 (1980), pp. 313–39; B. J. L. Berry, "Commuting Patterns, Labour Market Participation, and Regional Potential," *Growth and Change* 1 (1970), pp. 1–10; B. J. L. Berry and Q. Gillard, *The Changing Shape of Metropolitan America* (Cambridge, Mass., 1977).

9. The clearest exposition of this distinction is in the Afterword to *Urban Question*, pp. 439–52.

10. William Alonso, *Location and Land Use* (Cambridge, Mass., 1964); "A Theory of the Urban Land Market," *Proceedings of the Regional Science Association* 6 (1960), pp. 149–58; David Harvey and Lata Chaterjee, "Absolute Rent and the Structuring of Space by Financial Institutions," *Antipode* 6(1) (1974),

pp. 22–36; Neil Smith, "Toward a Theory of Gentrification: A Back to the City Movement by Capital not People," *Journal of the American Planning Association* 45 (1979), pp. 538–48.

11. On this juxtaposition of order and disorder in the American city, see Sam Bass Warner, *The Urban Wilderness* (New York, 1972), ch. 2.

12. Harvey, *Limits*, chs 9 and 11.

13. John Merrington, "Town and Country in the Transition to Capitalism," *New Left Review* 93 (1975) (reprinted in R. Hilton [ed.], *The Transition From Feudalism to Capitalism* [London, 1976], pp. 170–95).

14. On the formal and real subordination of labor, see *Capital*, 1, p. 510; "Results of the Immediate Production Process," in the Vintage edition of *Capital* (New York, 1977), 1, pp. 1019–38. For a discussion of this issue in relation to the uneven development of the U.S. economy, see Aglietta, *Capital Regulation* (London, 1979).

15. Harvey, *Limits*, p. 429.

16. There is considerable discussion and debate on these issues but little disagreement concerning the importance of wage rates. See Amin, *Unequal Development*; Mandel, *Late Capitalism*, ch. 11.

17. Harris, "Asian Boom Economies." I disagree strongly, therefore, with the analysis by Warren, *Imperialism*.

18. Andre Gunder Frank, *Capitalism and Underdevelopment in Latin America* (New York, 1967).

19. Bukharin, *Imperialism*. See also Colin Barker, "The State as Capital"; Arghiri Emmanuel, *Unequal Exchange* (New York, 1972); and Anwar Shaikh, "Foreign Trade and the Law of Value: Part II," *Science and Society* 44 (1980), pp. 27–57.

20. *Capital*, 2, p. 162; Marx, *The Revolutions of 1848* (Harmondsworth, 1973), p. 69.

21. Precisely this problem was among the issues in the Federalist debates between Jefferson on the one side and Hamilton and Madison on the other.

22. Insofar as this control involves the ideology of nationalism, the material basis to Taylor's equation of the nation-state and the scale of ideology becomes apparent ("Geographical Scales," fn. 64). Cf. "There is, then, a material basis for the perpetuation and reconstitution of traditional prejudices, of regional and national rivalries within an evolving framework of uneven geographical development"—Harvey, *Limits*, p. 442.

23. *Capital*, 1, p. 353; 2, pp. 249–51.

24. Doreen Massey, "In What Sense a Regional Problem?" *Regional Studies* 13 (1979), pp. 233–43; "The U.K. Electrical Engineering and Electronics Industry," pp. 39–54.

25. Gottmann, *Megalopolis*, p. 218; Carney, Hudson, and Lewis, *Regions in Crisis*; Frank Moulaert and Patricia Wilson Salinas (eds), *Regional Analysis and the New International Division of Labour* (Boston, 1983).

26. *Capital*, 3, p. 246.

27. Ibid., 1, p. 626.

28. *Communist Manifesto*, p. 14.

29. Mandel, *Late Capitalism*, pp. 60–61.

30. Sohn-Rethel, *Intellectual and Manual Labour*, p. 15.

31. Smith, "Theory of Gentrification," fn. 10; "Gentrification and Uneven Development," *Economic Geography* 58 (1982), pp. 139–55. The peculiarity of the urban scale vis-à-vis the others is partly that decentralization is simultaneously expansion of the urban scale itself, and not at all a *re*-centralization of activities somewhere beyond.

32. Carney, Hudson, and Lewis, *Regions in Crisis*.

33. See, for example, Brian Berry, "Inner City Futures: An American Dilemma Revisited," *Transactions of the Institute of British Geographers* NS 5(1) (1980), pp. 1–28.

34. Harris, "Asian Boom Economies," fn. 17. See also Alain Lipietz, "Towards Global Fordism?" *New Left Review* 132 (1982), pp. 33–47.

35. Nigel Harris, *Of Bread and Guns*.

Chapter Six: Conclusion

1. Lipietz, "Towards Global Fordism?" See also Michel Aglietta, *A Theory of Capitalist Regulation* (London, 1979).

2. Lipietz, "Towards Global Fordism?" Harris, *Of Bread and Guns*. But for an opposite view, see Warren, *Imperialism*.

3. Barry Bluestone and Bennett Harrison, *The Deindustrialization of America* (New York, 1982); Samuel Bowles, David Gordon, and Thomas Weisskopf, *Beyond the Wasteland* (New York, 1983).

Afterword to the Second Edition

1. Stephen Jay Gould, *Time's Arrow Time's Cycle: Myth and Metaphor in the Discovery of Geological Time* (Cambridge, Mass., 1987), pp. 2–3; John McPhee, *Basin and Range* (New York, 1980); James Hutton, *Theory of the*

Earth: Transactions of the Royal Society of Edinburgh I (Edinburgh, 1788), p. 304.

2. Doreen Massey, *Spatial Divisions of Labour* (London, 1984). Massey's geological metaphor has, of course, been criticized as too mechanical. While this point is well taken I think it does still capture in general terms the historical interlaying of space and spaces by and within social processes.

3. Nathanial C. Nash, "Mending Financial Safety Net," *New York Times* 7 October 1986.

4. Edward P. Thompson, "Beyond the Cold War," Raoul Wallenberg Lecture, Rutgers University, New Brunswick, N.J. 15 November 1989.

5. Stephen Kern, *The Culture of Time and Space 1880–1918* (London, 1983).

6. On new geographical patterns of investment in high-technology industries, see Allen J. Scott, *New Industrial Spaces* (London, 1988); on the disintegrative effects of deindustrialization on previous regional configurations see Neil Smith and Ward Dennis, "The Restructuring of Geographical Scale: Coalescence and Fragmentation of the Northern Core Region," *Economic Geography* 63 (1987), pp. 160–82; on gentrification and homelessness see Peter Marcuse, "Neutralizing Homelessness," *Socialist Review*, 18(1) (1988); Rosalyn Deutsche, "Uneven Development: Public Art in New York City," *October* 47 (1988), pp. 3–52; on the plains see Frank Popper and Deborah Popper, "The Great Plains: From Dust to Dust," *Planning* 53(12) (1987), pp. 12–18.

7. The phrase is Ed Soja's: *Postmodern Geographies: The Reassertion of Space in Critical Society Theory* (London, 1989).

8. John Berger, *The Look of Things* (New York, 1974), p. 40; Soja, *Postmodern Geographies*; see also Sharon Zukin, *Landscapes of Economic Power* (Berkeley, 1991), who conceives of "landscape" as "the major cultural product of our time"; and Kristen Ross, *The Emergence of Social Space: Rimbaud and the Paris Commune* (Minneapolis, 1988).

9. Frederic Jameson, "Postmodernism, or the Cultural Logic of Late Capitalism," *New Left Review* 146 (1984), pp. 53–92; Davis Harvey, "On the History and Present Condition of Geography: An Historical Materialist Manifesto," *Professional Geographer* 36 (1984), pp. 11–18; Harvey, *The Condition of Postmodernity* (Oxford, 1989).

10. Frederic Jameson, "Marxism and Postmodernism," *New Left Review* 176 (1989), pp. 44–45. As regards the appropriation of culture as camouflage

against politics, it should hardly have to be said, but to avoid any misunderstanding, it is worth emphasizing that this is a very particular appropriation of a specific discourse. It would be absurd to posit that cultural analyses are inherently depoliticizing or conservative.

11. Mike Davis, "Urban Renaissance and the Spirit of Postmodernism," *New Left Review* 151 (1985), pp. 106–13; Douglas Kellner (ed), *Postmodernism/Jameson/Critique* (Washington D.C., 1989).

12. Henri Lefebvre, *The Production of Space* (Oxford, 1991), ms. transl. Donald Nicholson-Smith; originally published as *La Production de l'espace* (Paris, 1974). For recent treatments of Lefebvre see Soja, *Postmodern Geographies;* and M. Gottdiener, *The Production of Urban Space* (Austin, 1985). On the potentially "separated, schizoid consciousness," recall Marx's insight that with the development of abstract thought and conceptualization, consciousness can for the first time "really flatter itself that it is something other than consciousness of existing practice" (*German Ideology*, p. 52).

13. *The Production of Space*, I, ff. 30, 35; II, f. 129; IV, f. 93; Jürgen Habermas, "Modernity—An Incomplete Project," in Hal Foster (ed.), *The Anti-Aesthetic, Essays in Postmodern Culture* (Port Townsend Wash., 1983), p. 6.

14. *The Production of Space*, I, ff. 82, 95.

15. Although I initially conceived of an urban scale at the lower end of the spectrum of geographic space, I would now want to revise this. First, I would prefer to discuss "the local" rather than "the urban" for the obvious reason that it includes the rural production of space. Second, I would also add the scale of the home in which relations of social reproduction and gender construction determine the boundaries and internal differences.

16. For a more elaborate treatment of the production of scale see Neil Smith, "Geography, Difference and the Politics of Scale," in J. Doherty, E. Graham, and M. Malek (eds), *Postmodernism and the Social Sciences* (Houndmills, 1992).

17. For a longer version of this story, see Neil Smith, "Tompkins Square Park: Rents, Riots and Redskins," *Portable Lower East Side* 6 (1989), pp. 1–36.

18. Francis Fukuyama, "The End of History?" *The National Interest* 16 (1989), pp. 3–18.

19. *The Production of Space*, I, ff. 28–9.

20. Ibid. IV, f. 87.

21. Marshal Berman, *All That is Solid Melts into Air: The Experience of Modernity* (New York, 1982), p. 123; Soja, *Postmodern Geographies*, pp. 35–37;

Neil Smith, "Geography as Museum: Conservative Idealism and Private History in the 'Nature of Geography,'" *Annals of the Association of American Geographers, Occasional Papers* I (1989), pp. 91–120.

22. Casper W. Weinberger, "Bring Back Geography," *Forbes* (1989 December 25), p. 31.

23. See for example James Clifford, *The Predicament of Culture* (Cambridge, Mass.: 1988).

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